CW Report

Chemical Week

March 19, 1955

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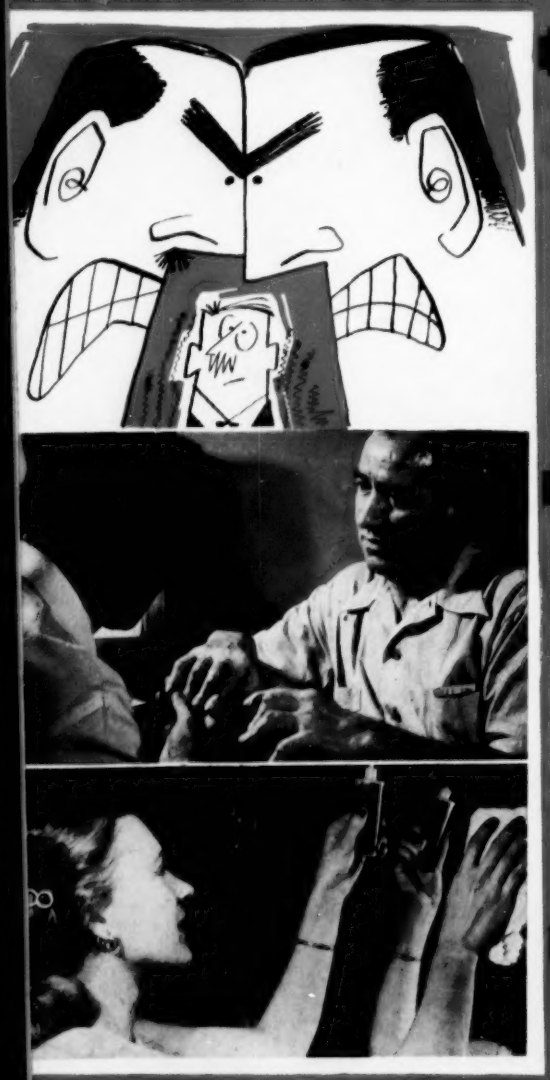

Tougher than technology are the problems of human relations, but they're as pressing . . . . . p. 41

It may be easier now to boost profits by controlling sales cost than by upping sales . . . . p. 59

New anti-arthritis drugs point up swing toward synthesis, away from natural products . . . p. 70

Wraps are off the fluid-bed technique of making titanium tetrachloride from ore . . . p. 84

Antifogging agents for glass, well entrenched in industry, seek consumer market . . . p. 102

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Photo courtesy O'Sullivan Rubber Company, Winchester, Va.

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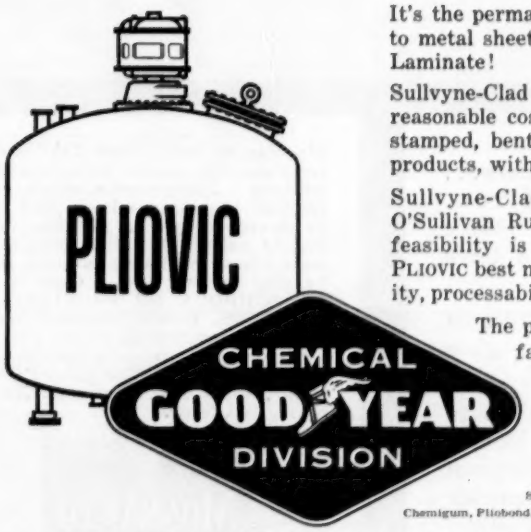

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Chemical Week

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"Current Uses of Furfural"

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OPINION . . . . . .

More Rare Earths

To the Editor: . . . I have just read your news article on rare earths (*Mar. 5, p. 66*) . . . it is a very good account of the status of the industry. . . .

You did not mention, however, that bastnaesite is also being produced on a small scale in New Mexico, although no sales of this material have as yet been reported. . . .

You point out that large quantities of rare earths are potentially available from domestic ores and as by-products from thorium production. Increasing use is to be expected and it is hoped that the steel industry will find the rare earths are advantageous in the uses you mention as presently being tested. . . .

Frank D. Lamb
Assistant Chief
Branch of Rare and
Precious Metals
U.S. Dept. of the Interior
Washington, D.C.

'Unpardonable Sin'

To the Editor: So it's tough to find a real salesman? (*CW, Feb. 19, p. 70.*) With all the well-stated reasons therein the crux of the whole problem is largely contained in the two words of the second paragraph—"bright, young."

If sales jobs, as well as many others in technical fields, are to be limited only to the young, the door is automatically slammed in the face of many who could make good salesmen but who have committed the unpardonable sin of getting a little older. Imagine a sales manager issuing the following instruction, "Do not see 40% of your prospects." And yet when all the factors that make a good salesman are subordinated to youth it is no wonder that the difficulty of finding good people is increased. The available market has been arbitrarily reduced.

What makes a good salesman? The same personality traits possessed by any other good person. Friendliness, neatness of appearance, courtesy and consideration, plus the knowledge of his products and the ability to show how those products can be of service to the prospective user.

Can't an older person have these qualities? Besides, he is likely to have more patience, and, especially if he has had technical experience, he might think of more ways in which a product could be useful to the buyer.

Statistics tell us that more people are living longer and there are many years of efficient and faithful service available from those beyond 40. Until employers realize this we shall continue to hear how difficult it is to get able technical salesmen and other technical personnel . . .

Name Withheld
Hillside, N.J.

P.S.: These are my convictions; I am not in the market for a sales position but in case some people might interpret my remarks as a solicitation for a sales job, please omit my name.

'En Garde'

To the Editor: . . . I have been read-with a great deal of interest the reports you publish on the many mergers taking place in the chemical industry . . . , which were highlighted in your "Behind the News" (*Feb. 26*) issue . . .

I believe that we should be thankful that virtually all these mergers have been between chemical companies or responsible concerns . . . and most have been logically conceived so that the future of the companies will be unimpaired. But we should be conscious of what is happening in other industries—and may come to pass as far as chemicals are concerned . . .

In the metal-working field, for instance, many corporation executives are disturbed because "raiders" are moving in . . . These men, with substantial financial resources at their command, buy blocks of stock in prosperous and well-managed concerns and keep the stock in the names of brokers . . . Their actions are, I suppose, legal—but certainly they are surreptitious . . .

When they have picked up a sub-

Index Available

Copies of the Chemical Week index for Vol. 75, July-Dec., 1954, are now available from Chemical Week, Reprint Dept., 330 W. 42nd St., New York 36, N. Y., free of charge. Subscribers not already on the mailing list to receive indexes will be added to the list upon application.

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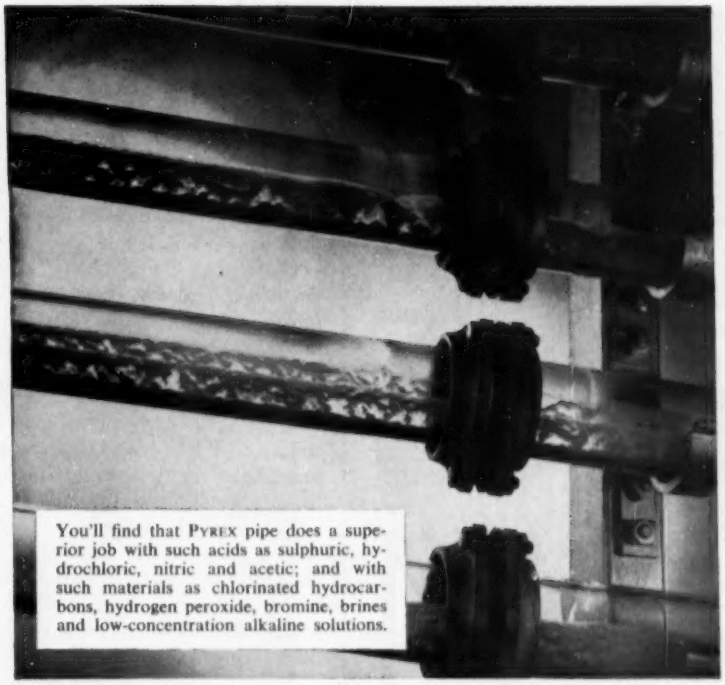

You'll find that PYREX pipe does a superior job with such acids as sulphuric, hydrochloric, nitric and acetic; and with such materials as chlorinated hydrocarbons, hydrogen peroxide, bromine, brines and low-concentration alkaline solutions.

One plant manager describes his experience with PYREX pipe this way: "There was no breakage during installation. There have been no lines broken because of the product handled, the temperatures involved, or the age of the pipe. There has been no accidental breakage. In short—there has been *no breakage*."

Every "product" line in this manager's plant has been PYREX pipe since 1943. The company switched to PYREX pipe because metal lines were quickly corroded by product acids. Corrosion in the metal piping also made cleaning difficult. Frequent replacements made maintenance very costly.

Engineers and operating men in hundreds of processing plants make similar "no breakage" reports about millions of feet of PYREX brand glass piping in use today. If you are not enjoying the trouble-free corrosion resistance of PYREX pipe because you are worried about breakage, why not talk to people who use it daily. We shall be pleased to furnish names.

You can install it easily

Over 75% of the PYREX pipe now in use has been installed by our customers' own pipe fitters. It is easier to hang than many other kinds of corrosion resistant pipe. There are no special hard-to-catch-onto tricks about it. Our installation manual covering every detail is yours for the asking.

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To offset strain, all PYREX pipe ends and fittings (except U-bends) are now tempered, which makes them much stronger than annealed fittings. They are strong enough to drive nails with.

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The liquid-smooth surface of PYREX pipe does not pit. It stays cleaner longer. When cleaning is necessary, it is easy; for you can see the interior of the pipe at all times.

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For more information to help you judge the advantages of PYREX pipe, let us send you any or all of the bulletins listed in the coupon below. Or, if you prefer to discuss your own specific problem immediately with one of our representatives, write, wire or phone us.

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stantial block of stock they confront the management and demand representation on the board of directors. The first inkling that corporations have of the activities are, quite often, the unannounced appearance of the financiers themselves when they present their demands . . .

Quite often these "raiders," as they are called, are not interested in the future of the corporation or of the industry; they just want to make a fast profit . . . As a consequence, the management of such companies in which they acquire control may well suffer . . . They don't know the business; they are just students of the balance sheet, and opportunists . . .

I would not be in the least surprised to see these tactics applied to the chemical business . . . The chemical industry is attractive, from many standpoints. And I believe that it would be disastrous if this were to happen . . .

Perhaps there is not too much that any company president can do to forestall "raids" . . . but I should think that it would be highly desirable for all chemical corporations to keep a very close watch on transactions in its stock . . . A particularly close watch . . . now . . .

LEWIS M. CARTER
San Francisco

Consumer Items

TO THE EDITOR: Without in any way detracting from the splendid job done by the Green Cross Division of Sherwin-Williams of Canada, Ltd. . . . the news article (*Feb. 12*) gives the impression that the Sherwin-Williams Co. of the United States has completely withdrawn from the pesticide business in this country.

It is a fact that Sherwin-Williams in the U.S. has largely discontinued the merchandising of pesticides but we are manufacturing and selling agricultural chemicals to dealers and distributors of these materials in this country and we expect to continue in this field indefinitely. . . .

B. M. VAN CLEVE
Vice-President
The Sherwin-Williams Co.
New York, N.Y.

Right. That's why CW, *in referring to S-W consumer specialties sales, used the restrictive phrase: "S-W has withdrawn from the consumer arena here."*—ED.

Somber Warning

TO THE EDITOR: Do I detect a note of censure in your report on water pollution in Great Britain and the laws that are set up to curb pollution ("Somber Warning: It Might Happen Here," Feb. 5, p. 20)? . . .

In this "tight little island," location is everything. There is still room enough for manufacturing concerns with lethal effluents on those rivers like the Mersey and the lower Thames, which are already polluted beyond all hope of redemption. . . . But what justification is there for building a factory in an area noted for its scenic beauty . . . or on the River Dee, one of the best salmon rivers in Britain? . . .

Many of us in this country believe that far too little is done to ensure that our remaining pure rivers remain so. . . .

G. SWANN
Nr. Liverpool
Great Britain

CW *was not indulging in any censure of British laws. Perhaps it is, though, that we were sounding a British tocsin for U.S. chemical makers.*

We reported that the British have a tight law on river pollution and it, and the efforts of the people to preserve scenic beauty, "are being eyed covetously by U.S. groups who'd like to have rigorous federal pollution control requirements in the U.S." Too, "Up to now U.S. congressmen have given scant thought to the idea of such zealous federal regulation, but rapidly increasing U.S. population and industrialization will tend to give this policy appeal in Washington."—ED.

DATES AHEAD . . .

Fourth Annual Water Symposium, Louisiana State University, Baton Rouge, March 22-23.

National Farm Chemurgic Council, annual chemurgic conference, Deshler-Hilton Hotel, Columbus, O., March 22-24.

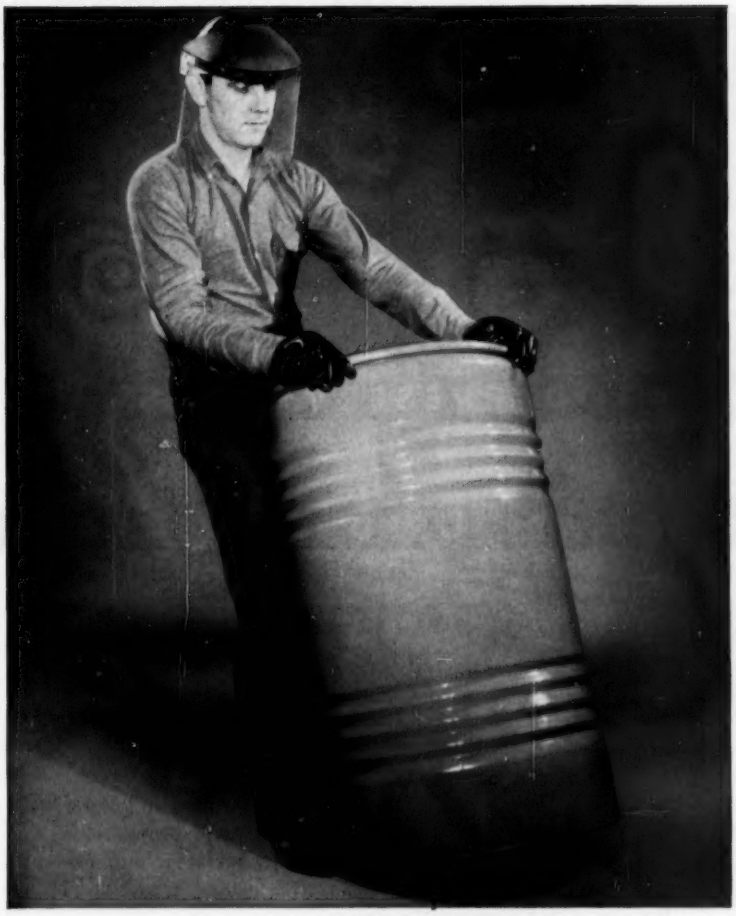
National Industrial Conference Board, marketing conference, Shamrock Hotel, Houston, March 24.

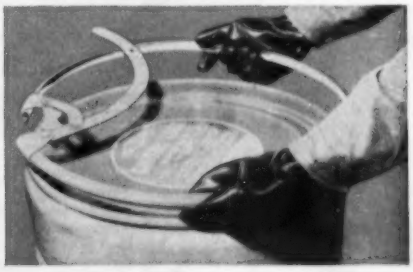
World Plastics Fair and Trade Exposition, National Guard Armory, Los Angeles, April 6-10.

American Drug Manufacturers' Assn., annual meeting, Boca Raton Club, Boca Raton, Fla., April 13-14.

Chemical Progress Week, May 16-21.

DOW





Sturdy new open-head drum ships, handles and stores better under all conditions; improved recessed-head ring lock grips tighter, opens and closes more easily and with greater safety.

NOW—DOW CAUSTIC SODA in a new FULL OPEN-HEAD DRUM with superior shipping, handling and storage features

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This sturdy premium drum features an exclusive recessed-head ring lock that *reduces damage* in shipping and handling, *saves space* in storage. The smooth outer surface prevents climbing or riding during transit. The swedged-in head design, another exclusive feature, assures all the advantages of open-head construction without the drawbacks experienced with other drums of this general type.

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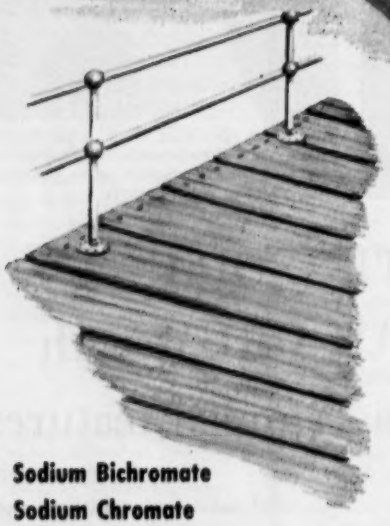

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Allied Chemical

NEWSLETTER

The more you use, the more you have. That paradoxical truth was proved again this week when the American Petroleum Institute and the American Gas Assn. disclosed their year-end figures on crude oil, gas liquids, and natural gas reserves.

Despite production of some 2.5 billion bbls. of crude oil and natural gas liquids, proved reserves at the end of 1954 stood at 34.8 billion bbls.—almost a half-billion bbls. higher than a year earlier.

Natural gas production, too, failed to keep pace with new discoveries and proved extensions. Reserves increased during the year by 263 billion cu. ft.—to a total of 211.7 trillion—while production totaled 9.5 trillion cu. ft.

•

It pays to protest your taxes, is the moral of another piece of natural gas news. Firms that paid under protest the Texas gas gathering tax—a law since declared unconstitutional—were promptly refunded their money. The Texas state senate, on the other hand, last week rescinded its earlier action permitting Tennessee Gas Transmission to sue the state for recovery of its payments—made without protest.

•

Another merger, and a U. S.-built Canadian drugs plant:

• Jefferson Lake Sulphur has taken over the Merichem Co. (Houston), manufacturer of cresylic acids and other chemical products.

• Pfizer will build a $750,000 antibiotics and chemicals plant at Arnprior, Ont., 35 miles from Ottawa. Construction will begin next month, is slated for completion in October.

•

Latest research results with 9-*α*-fluorohydrocortisone add considerably to the compound's earlier promise (*see p. 70*). A team from Harvard Medical School and Peter Bent Brigham Hospital revealed this week that extremely small doses of the fluorinated derivative are effective in the treatment of Addison's disease. The new drug was synthesized by Squibb researchers.

•

Feeling their oats, perhaps, as a result of the successful merger negotiations (*CW Newsletter, March 12*), the Oil Workers' Local 5 is seeking a 15¢ raise from Shell Oil, at Martinez, Calif.; Shell Chemical, at Martinez and Pittsburgh; Monsanto, at Avon; and Tide Water Associated Oil, at Avon. Shell has already offered 10¢, the union says. The local is comprised of 2800 maintenance and production workers.

•

Meanwhile, maintenance workers at Allied Chemical's National Aniline plant in Buffalo, N. Y., are kindred spirits to out-again, in-again, gone-again Finnegan.

For 10 years, their group was part of the plantwide bargaining unit represented by District 50, United Mine Workers. In 1953, they pulled out of District 50 and joined Local 2034, Brotherhood of Carpenters Joiners (AFL). Last week, in a special NLRB election, most of them reversed their field again: pipe fitters, instrument mechanics and their helpers voted by 59-40 to drop out of the AFL; machinists, garage

mechanics and sheet metal workers voted by 29-14 to stay in the carpenters' union.

Buffalo observers are now laying odds on how soon these workers will return to District 50.

•

Isocyanates, coke-oven gas, and radiation of sewage are the diverse subjects of new projects:

• National Aniline Division of Allied will take a giant, multi-million-dollar step into isocyanates production at Moundsville, W. Va. A fully integrated facility, the plant will get all its raw materials from within the Allied organization, will turn out diisocyanates of toluene, ditolyl and diphenylmethane. The plant, which Allied hopes to complete early next year, will adjoin Solvay's new chlorine-caustic-chlorocarbons plant and National's maleic-fumaric-aniline facilities. National will supply isocyanates to polyurethane makers, will also supply coloring materials for foam and other polyurethane products. Allied expects that its large-scale, fully integrated plant will establish the basic price structure for the isocyanates industry.

• Air Products, Inc. (Allentown, Pa.), is now offering equipment to purify coke-oven gas so that it can be used, as it is in Europe, to produce ammonia synthesis gas. Air Products has entered into an arrangement with Dutch State Mines to exchange technical know-how; the latter organization has been operating the process for 25 years.

• Two Clevelanders, A. J. Teller of Fenn College and George Miller of Distillata Co., are seeking a $700,000 grant from various foundations for research and development of a radiation treatment to purify water and sewage. It would employ radioactive wastes from nuclear reactors. They caution, however, that research might take five years; hence they promise no quick solution of the Lake Erie pollution problem.

•

Potential uses of atomic energy in chemical process plants was the subject of a behind-the-doors meeting at Atomic Energy Commission offices late last week. Among the firms from which representatives were invited by AEC: American Cyanamid, Diamond Alkali, Dow, Du Pont, Mallinckrodt, Monsanto, Union Carbide, Vitro, General Aniline & Film, Lindsay Chemical, and Spencer.

Also meeting with AEC this week, to explore their possible activities under new AEC regulations were representatives of research organizations. Among them: Battelle, Nuclear Metals, Walter Kidde Nuclear Laboratories, Nuclear Development Associates, Sloan-Kettering, and various colleges and universities.

•

Meanwhile, plans are shaping up in Cleveland for the initial Atomic Exposition, sponsored by the American Institute of Chemical Engineers in conjunction with 16 other groups. Exhibitors will include the AEC; suppliers of materials, parts, equipment and services to the atomic power and allied fields; firms identified with nuclear power; and companies in nonpower fields—e.g., makers of equipment and materials for radioisotope use. Date: Dec. 10-17; place: Public Auditorium.

•

Footnote on atomic progress: During the first 11 months of 1954, AEC shipments of radioisotopes (measured in curies) exceeded by more than 20% the total shipments in the preceding seven and a half years.

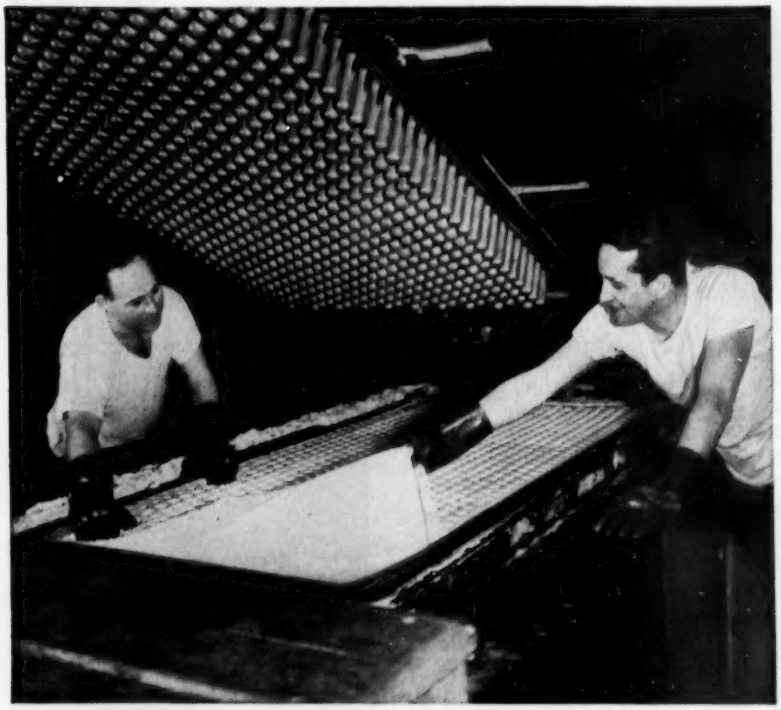
. . . The Editors

FOR EVERY FILM-FORMING JOB

THE KEY IS CMC

AT WORK—The Goodyear Tire & Rubber Company has found CMC to be an excellent mold release agent in Airfoam production. The dry CMC film provides a mold surface that resists shrinkage of the foam and, when wet, permits easy stripping without tearing.

OR PLAY—This young man's bubbles are also dependent on Hercules CMC. This product of Mecklenburg Specialties, Inc. provides a simple but convincing demonstration of the exceptional film-forming properties of CMC, and suggests its wide range of application.



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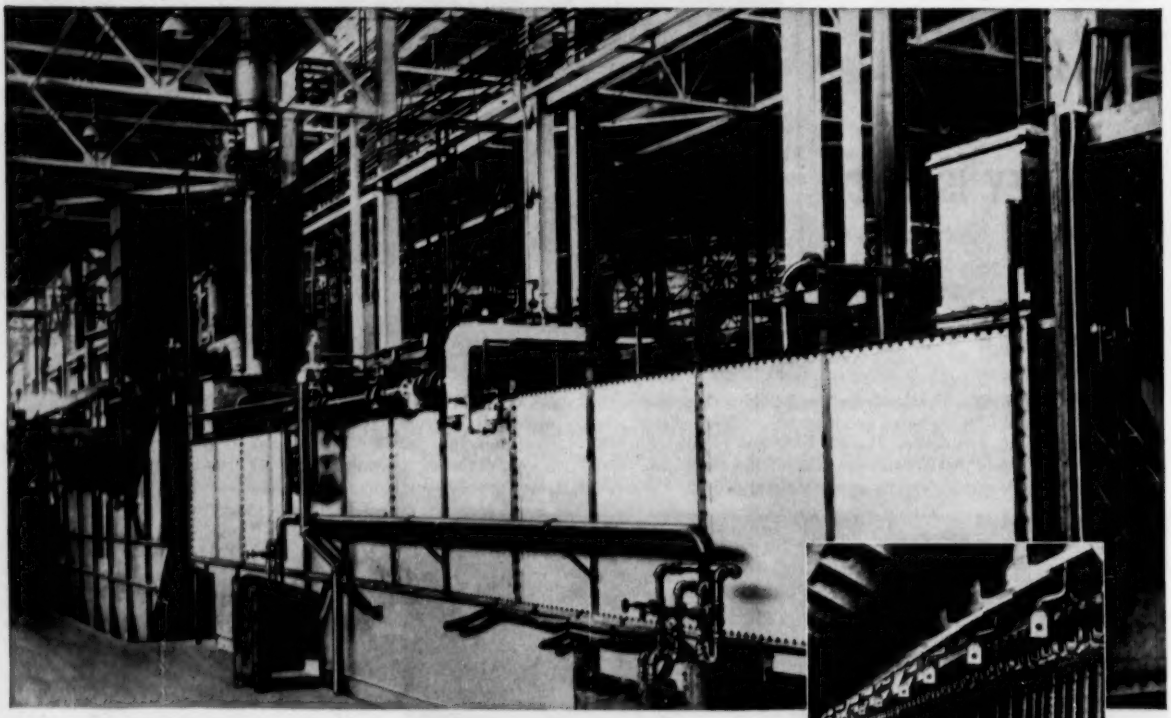

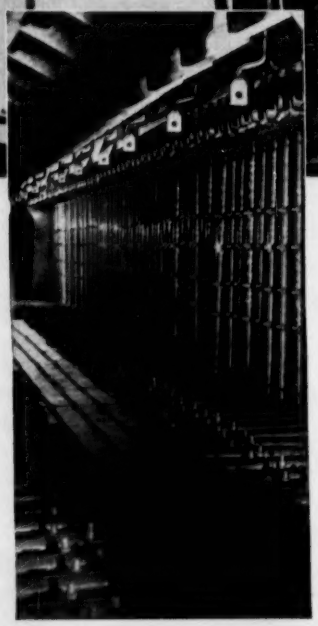

Sulphuric acid has been known to eat the bottom right out of production economies. But this large Midwestern plant is one of many that has found the economic way of handling this highly corrosive acid. They use United States Rubber Company Linings and Uscolite® plastic pipe and fittings.

The pickling machine in this plant handles a 10% to 15% solution of sulphuric acid. The process tank, pipe and pipe headers, and internal surfaces of housings and plates are lined with U. S. Permobond®. Pipe, street ells and nozzles are made of U. S. Uscolite, the thermoplastic that resists corrosive acids.

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BUSINESS & INDUSTRY. . . .

LYN CRAWFORD, McGRAW-HILL

PICKETS, UNION OFFICERS*: Even before AFL-CIO merger, they launch concerted action that may set industry pattern.

Three Unions, One Strike

Foreshadowing the kind of bargaining tactics that can be expected after anticipated unification of the chemical labor unions is the three-plant strike started against Colgate-Palmolive Co. last week by three separate but cooperating local unions.

One is the nonaffiliated Employees Assn. of Colgate - Palmolive Co., which represents about 2500 production and maintenance workers at Jersey City, N.J.; another is Local 15, International Chemical Workers (AFL), representing about 1100 employees at the Colgate plant near Jeffersonville, Ind.; and the third is Local 114, United Gas, Coke & Chemical Workers (CIO), speaking for some 700 hourly paid Colgate employees at Kansas City, Kans.

Despite the absence of any organizational ties, these three locals are bound together in an informal alliance aimed at keeping the company from "using" one local against another. This unwritten agreement has been in effect for the past four years, with each union sending a representative to help another local negotiate a new contract.

Terminations Close Together: Industry observers saw a prophetic coincidence in the fact that these three locals' first joint strike action came on the heels of the AFL-CIO merger agreement and the recent merger of the CIO's Oil Workers and Chemical Workers. Here's how the triple strike came about:

Contracts expired Oct. 1 at Jeffersonville, Nov. 1 at Kansas City, and Jan. 1 at Jersey City. Bargaining for new contracts started in advance of those termination dates, but bogged down over the unions' initial wage demands—25-30¢/hour increases.

When the company indicated that it "couldn't see" such a large jump, the unions scaled down their asking price to a flat 14¢ at all three plants. Colgate has offered a 6¢ rise retroactive to Jan. 1, but has stood fast against any higher pay hike; and that's where matters stood late last week as peaceful picketing stopped production at the three factories.

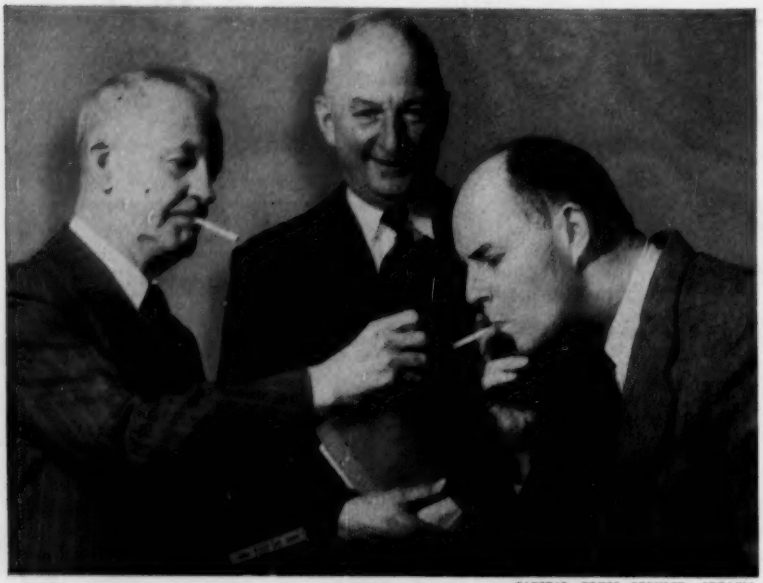
Comparisons Cited: Both sides have cited wage rate comparisons in attempting to justify their positions. The company says that in wage settlements by 56 nationally known companies during the past year, the average increase was 5.3¢/hour, compared with Colgate's 6¢ offer.

The labor unions explain that their original demands were based on information that "a competing soap manufacturer pays his men 30¢ more per hour than Colgate for both skilled and unskilled work."

Colgate also asserts that it provides wage benefits costing more than 50¢/man-hour, and that Colgate is "in the front rank of American industry" in this respect.

Colgate is still in production at its plant in Berkeley, Calif., where employees are represented by a union that has declined to join the triple alliance. Meanwhile, the chemical process industries—which up to now have had virtually no multiplant bargaining—are getting their first sample of what may be a common bargaining technique if the labor unions carry out all their unification plans.

* At Jersey City, William Mayer, member of bargaining committee; William Clark, secretary; Aloysius Whalen, president; and Sam Sanandres, vice-president, all of Colgate-Palmolive Employees Assn.



CAPITAL PRESS SERVICE, OTTAWA

CANADIAN TARIFF BOARD*: In ruling on plasticizers, a verdict for . . .

Chemical Make-up, Not Use

Favorable to U.S. chemical producers, unfavorable to Canadian producers—that's the way one Canadian chemical company sizes up last week's Canadian Tariff Board decision on classification of certain plasticizers and intermediates.

What the Tariff Board did was to dismiss an appeal in which Canadian Resins & Chemicals Ltd. (Montreal) was asking the board to reverse last June's finding by Deputy Minister David Sims of the Dept. of National Revenue that three chemical compounds—dicapryl phthalate, iso-octyl alcohol, and capryl alcohol—can be imported into Canada duty-free.

* Members H. B. McKenna, F. J. Leduc, W. W. Buchanan.

WITNESS MATHEWSON: On 'loophole' for foreign producers, a warning.

At the heart of the dispute: item 921 of the Canadian tariff law, which permits the duty-free entry of "materials of a kind not produced in Canada" when brought in for use in manufacture of plastics materials. The key word, it seems, is "kind."

Warning of 'Loophole': The Tariff Board seems to take the position that this law is to be construed very strictly. "It was established by expert evidence at the public hearing," the board stated, "that no one of the three chemicals at issue is produced in Canada. Accordingly, the appeal is dismissed."

But Canadian Resins insists that the law shouldn't be interpreted so narrowly. That company produces octyl alcohol and dioctyl phthalate—which also are used in vinyl plastics—and it argues that for all practical purposes of industry, its products are of the same "kind" as the three compounds whose duty-free status has just been reconfirmed.

If the government persists in holding that chemical products are of the same kind only if they're chemically identical, the company contends, firms that export chemicals to Canada could easily evade Canadian tariff rules. For example, some neutral material—possibly a homolog or isomer—could be added to a substance and thus make that product "a kind not produced in Canada."

This, the company continues, leads to a situation in which U.S. plasticizer manufacturers "are free to invade the limited Canadian plasticizer market with materials so similar to Canadian plasticizers that they displace the Canadian products."

Approved Unanimously

After a 45-minute hearing before the Joint Committee on Atomic Energy in Washington last week, Dr. John von Neumann (Hungarian-born mathematician) was accepted as a member of the Atomic Energy Commission.

Chief question in the minds of Senate Committee members: whether von Neumann's views on Dr. J. Robert Oppenheimer, World War II father of the atomic bomb, would disqualify him for the AEC job. Von Neumann (besides being a colleague of Oppenheimer at the Institute for Advanced Studies at Princeton, N.J.) had been a defense witness in the Oppenheimer security case. Von Neumann assures Senate members, however, he would now discourage any attempt to reopen the Oppenheimer affair.

WIDE WORLD

VON NEUMANN: No rehearing for Oppenheimer, he pledges.

SENATOR DANIEL, CONSULTANT FAULL: Reopening Baytown bidding is . . .

No Change in Policy

Last week Congress finally got around to the rubber disposal question—a decision long-awaited by chemical companies involved in purchase negotiations. Chances are still favorable that the package deal will pass—but not without considerable uproar from representatives on both sides of the ticklish transfer.

Chief questions now: (1) whether legislators can extend the negotiation deadline to include sale of the Baytown, Tex., GR-S plant without inflicting undue hardship on companies already committed to purchase of other facilities; and (2) whether sale of three West Coast facilities to Shell Chemical encourages monopoly.

In early sessions, here's how the sentiment was running:

• Representatives Wright Patman (D., Tex.) and Si Yates (D., Ill.) were the main opponents to over-all disposal. Their grounds: sale of plants primarily to large rubber, chemical and oil companies poses price and supply threats to small rubber users.

• Objections to the sale of Los Angeles plants making butadiene, styrene and GR-S rubber were raised by unsuccessful bidders—Minnesota Mining & Manufacturing, Midland Rubber and Edwin S. Pauley. Their claim: submission by Shell of a "package" bid of $30 million is in violation of the Disposal Act, which specified that bids must be made facility by facility.

• Objections to allowing sale of the Baytown plant (which produces 60% of the oil black masterbatch GR-S rubber made in the U.S.) came from Phillips Chemical—which produces the other 40%. This type of rubber is sold primarily to small users, who do not have—or want to have—their own mills for adding carbon black to crude GR-S.

Little Reaction Yet: Despite the fact that all these complaints were voiced vigorously, there seems to be little chance that Congress will sustain them. Reason: many senators and representatives feel that the whole negotiation period has gone on long enough, prefer risking some degree of inequity to scrapping the whole disposal plan.

In that event, contracts for the 24 plants "sold" will become final on March 26; actual transfer will take place between April 21 and 29; new bids for the Baytown plant would be accepted until the middle of May.

Underscoring current legislative thinking: last Friday (March 11) the House Armed Services Committee began to discuss two disapproving resolutions—one from Patman, one from Rep. Clyde Doyle (D., Calif.); a Senate Banking Subcommittee was considering objections to a bill that would allow for "late" sale of the Baytown plant; Sen. Wayne Morse (D., Ore.) has submitted the only Senate resolution to disapprove the entire sale.

Odd Timing?

As U.S. representatives to the Geneva Conference on Tariff and Trade hurried back to Washington this week with a draft version of proposed GATT agreements, they were met with an odd twist in timing.

Attacking the constitutionality of U.S. reciprocal trade agreements, (and GATT in particular) the Morgantown Glassware Guild, Inc. of Morgantown, W. Va., has filed a suit in U.S. District Court, Washington, D.C. naming Secy. of the Treasury George Humphrey as defendant. Its suit charges that the glass company is being injured as a direct result of concessions on import duties granted on hand-blown and pressed glassware.

Constitutional argument: that all the powers exercised by the Executive branch of the government under the Reciprocal Trade Acts and GATT are beyond the constitutional authority of the President and beyond the constitutional authority of Congress to delegate.

Thus while State Dept. officials are tinkering with the verbal intricacies of GATT (for Congressional presentation), Secy. Humphrey must cope with the problem of answering a charge on its very foundations. (His answer must be filed within the next 60 days).

Administration spokesmen profess lack of concern over the Morgantown Glassware Guild suit, say it will have no material effect on GATT agreement

proceedings (now expected to be put before Congress by March 31).

Washington observers are not so sure, however, and predict that the Justice Dept.'s reply bears close watching.

COMPANIES. . . .

A proposal to merge Horizons Titanium Corp. and Horizons Zirconium Corp. will be submitted to stockholders of the two firms on March 22. Under present plans, the zirconium firm would be absorbed by Horizons Titanium; Zirconium stockholders would receive eight shares of the surviving company's stock for each share presently held.

•

General Tire & Rubber Co.'s 100,000-share, $10-million offering of 4½% convertible $100-par preferred stock is on the market. The new preferred will be convertible into common stock at $60/share of common or on the basis of 1.6 shares of common per share of preferred until April 1, '59. Proceeds will be added to the company's working capital.

•

Directors of Hooker Electrochemical Co. (Niagara Falls, N. Y.) and Durez Plastics & Chemical, Inc. (North Tonawanda, N. Y.) have approved a formal agreement for the consolidation of the two companies, subject to stockholder approval. Consolidation will be effected by issuance of one share of Hooker common for each of the 1.65 million shares of Durez common outstanding.

EXPANSION. . . .

Gypsum Products: Two new plants for the Houston Ship Channel are in the planning stages this week:

- National Gypsum Co. will build a $6-million gypsum plant somewhere between Houston and New Orleans as part of its five-year $75-million expansion program.
- United States Gypsum Co. will build a $15- to 20-million gypsum paper mill at Houston.

No estimated date of completion is given by either company.

•

Newsprint: Alabama will get a new newsprint plant when International Paper Co. completes a $20-million mill at Mobile, sometime before the end of 1956. Estimated capacity: 100,000 tons/year of newsprint.

Mercaptans: Pan American Refining Corp.'s mercaptan synthesis plant at Texas City, Tex., is now in operation. When working at capacity, 5 million lbs./year of methyl mercaptan will be produced.

•

Canadian expansion news:

- Quebec Lithium Corp. (Toronto) plans to build a $3-million plant near Barraute, Que., to produce lithium concentrates. Capacity: 2000 tons/day. Part of the output (expected on-stream by Nov. 1)—165 tons/day—will be sold to Lithium Corp. of America.
- Options on 3500 acres of land in West Ferris Township (near North Bay) have been picked up by Du Pont of Canada Ltd. for a commercial explosives plant. No capacity is yet listed.
- Commercial Solvents Corp. has entered a four-way deal to build a nitrogen and phosphate fertilizer plant in southern Alberta. The new company (Northwest Nitro-Chemicals) will be operated by Commercial Solvents; completion is scheduled for late 1956. Cost: $22 million. Other partners: Canadian firms.

•

Sulfur: Freeport Sulphur Co. has started sulfur production at a new mine in the swamplands of Louisiana. The mine, known as Chacahoula, located at Thibodaux, La., is part of a Freeport development program at four new mines designed to boost sulfur capacity a total of 750,000 long tons/year.

•

Emulsifiers: Atlas Powder Co. has started production at its new $1.25-million food emulsifier plant in Memphis, Tenn. Construction started more than a year ago.

Goodwill Fights Polio

FIRST NATION outside of the U.S. to investigate mass immunization with the Salk polio vaccine is Venezuela, which has already started a pilot program using vaccine furnished free by Wyeth Laboratories (Philadelphia). Visiting the Wyeth plant to arrange the shipment was Dr. Humberto Fernandez-Moran (*left*), director of the Venezuelan Institute for Neurology and Brain Research (Caracas); his guide was Dr. George Farrar, Jr., Wyeth's medical director. First of 2000 Caracas children to be vaccinated in the test study: Dr. Fernandez-Moran's daughter.

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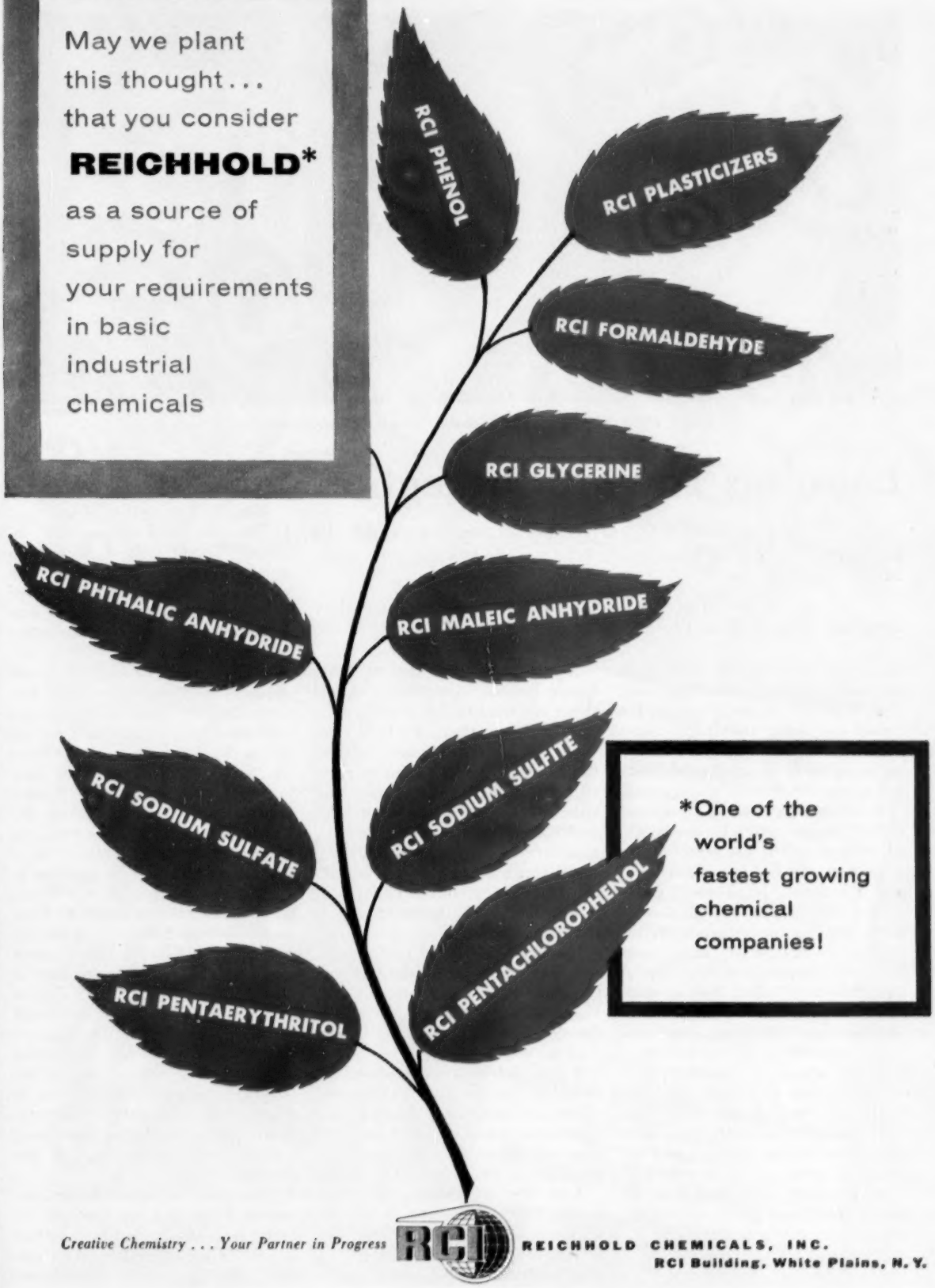

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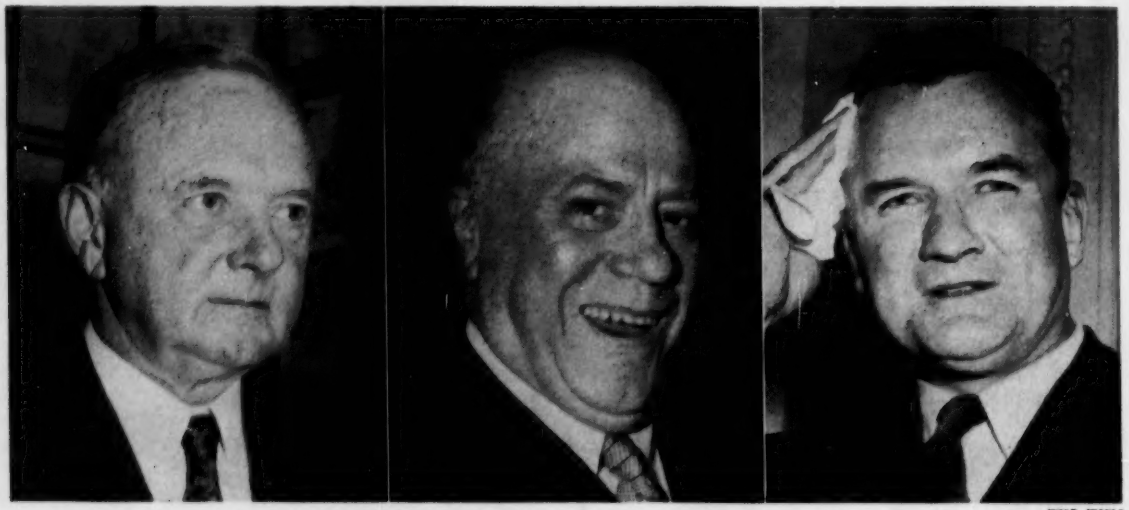


WIDE WORLD

BYRD, MILLIKIN, MALONE: Senate Finance Committee members . . .

Leaning Toward Protectionist Side

Running counter to early expectations, the President's reciprocal trade legislation is bucking stiff Senate Finance Committee opposition.

Good bet now: GATT will be lucky to pass legislative scrutiny without some protective modifications.

In a year in which liberalization of the trade agreement acts was supposed to have its best chance of passing the Senate and House unscathed, it looks now as though protectionists (including many major chemical companies) will manage to write in modifications.

President Eisenhower's reciprocal trade legislation, which barely squeaked through the House intact (*CW, Feb. 26, p. 11*), had been expected to pass the Senate by a much wider margin than it did. As things now stand, however, protectionists are receiving an unexpected assist from Southern Democrats—traditionally a solid "free-trade" bloc. Reason: spurred by pressure from Southern textile manufacturers (synthetic fiber producers as well as cotton weavers), Dixieland Senators are now concerned over the threat of foreign imports—particularly from Japan. They join New England Democrats, who have been a solid segment in the protectionist bloc all along, and Texas and Oklahoma legislators concerned over oil imports. Add these groups to the coal-area Democrats who traditionally vote for tariff restrictions and you have a sizable Democratic protectionist bloc.

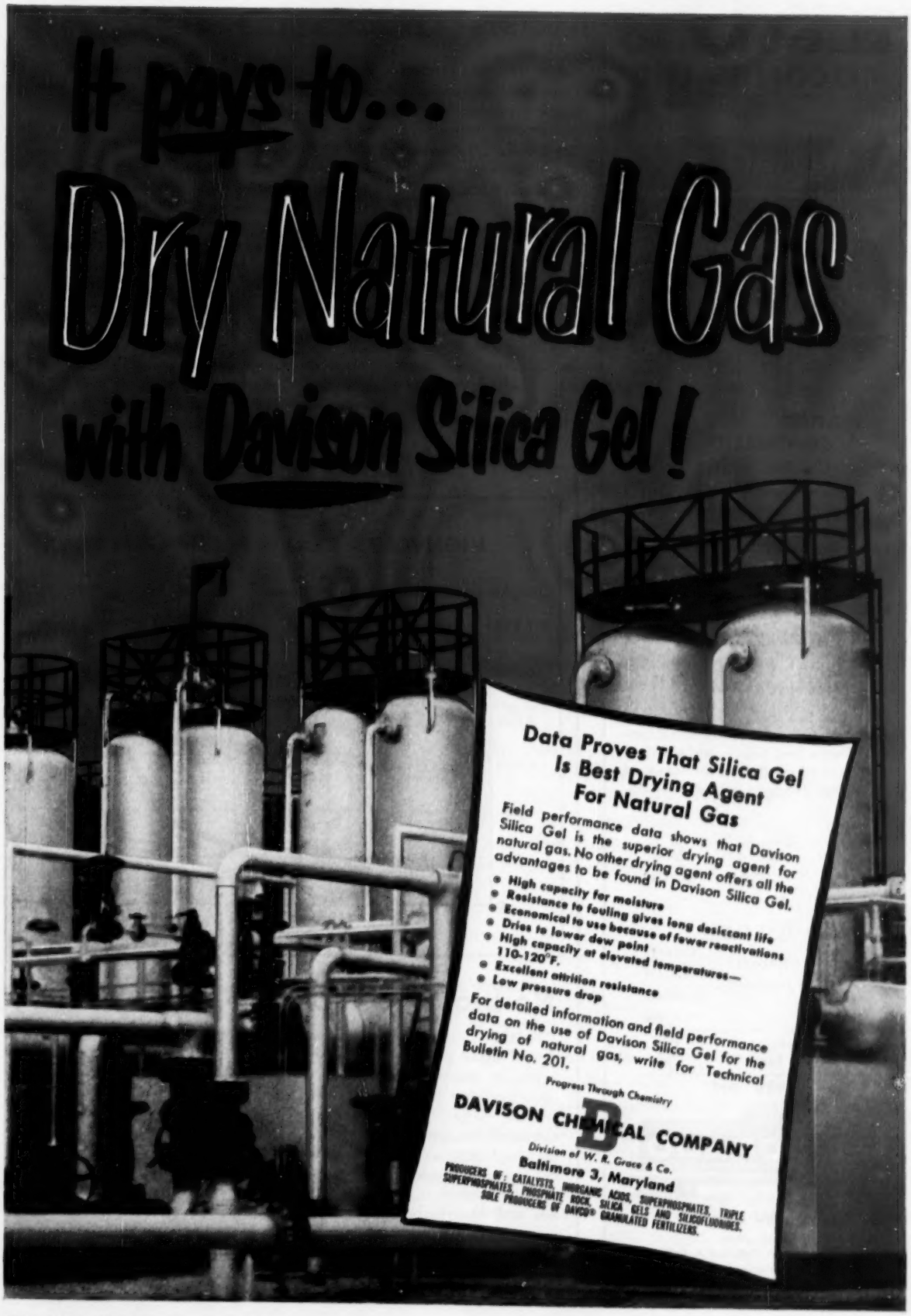
A run-down of sentiment among Senate Finance Committee members shows just what the bill is up against:

- Chairman Harry F. Byrd (D., Va.) has been noncommital during the hearings, but is known to favor some tightening up of restrictive provisions. The presence of textile mills in Richmond and southern Virginia, plus reported imports of apples, is believed chiefly responsible for producing Byrd's new protective plumage.
- Sen. Walter F. George (D., Ga.), former chairman of the committee and a long-time advocate of lower tariffs, this year is concerned about import threats to textile mills located in his home state. Practically the entire Georgia delegation voted for restrictions in the House.
- Sen. Robert Kerr, third-ranking Democrat, has voiced his concern over oil imports and has indicated by his questioning of witnesses that he favors more restrictions than are presently embodied in the President's program.
- On the Republican side, Sen. Eugene Millikin (R., Colo.), the ranking Republican and former Chairman, is regarded unofficially on the Hill as chief strategist for the protectionists. Millikin will have considerable influence among fellow Republican members and if his position coincides with the top two Democrats—Byrd and George—the three are almost sure to sway the majority of the committee in their direction.

Millikin won't have to do much swaying on Republicans like Sen. George Malone (R., Nev.), who favors letting the Trade Agreements Act expire and going back to Smoot-Hawley. Also siding with him are long-time protectionists, Senators Edward Martin (R., Pa.), Frank Carlson (R., Kan.), Ralph Flanders (R., Vt.), and Wallace Bennett (R., Utah). Also to that list can be added the one remaining Republican, Sen. John Williams of Delaware, also believed to favor some restrictive tightening of the act.

The reservations of these various members to proposed extension of GATT showed up in the early days of the hearings, scheduled to run through March 18. What form their proposed modifications of the act might take had not jelled midway during the hearings. But their thinking was in the direction of making Tariff Commission recommendations mandatory (rather than advisory) upon the President.

This means that if the Tariff Commission found that an American industry had been injured by a foreign import, its recommendations for correcting the injury would become man-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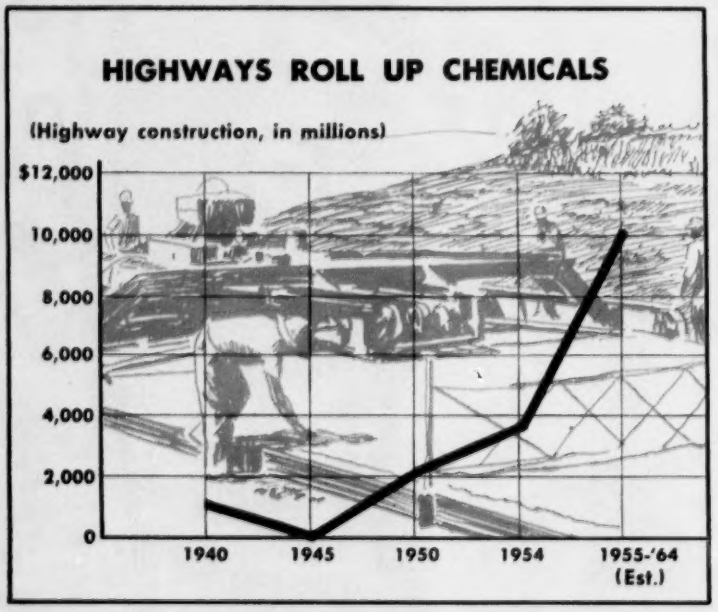
datory on the President, except in cases involving national security.

Sore Subject: One of the chief sore points with the protectionists is that the President has ignored Tariff Commission findings of injury in a number of instances and has refused to invoke the escape clause. They feel that with a Tariff Commission that leans towards more protection their problems would be simplified if "mandatory recommendations" was enacted.

Whatever restrictive changes are made by the committee, however, are sure to be sharply challenged. Reason: As a whole, the Senate lines up more pro-Administration than does the conservative Finance Committee. There are no really strong free-traders on the committee and when the bill gets to the floor, low-tariff advocates like Sen. Albert Gore (D., Tenn.) will fight to restore the House program.

A final factor that overhangs the entire trade extension picture, is the upcoming GATT treaty that the Senate will be asked to ratify later in the spring. Many protectionists, like Millikin, prefer to delay action on H.R. 1 until they know what will be in the GATT treaty, which sets up a supranational authority, similar to the U.N., for negotiating multilateral trade agreements. For that reason an effort may be made to delay action on H.R. 1 until later in the current Congressional session.

IMPACT



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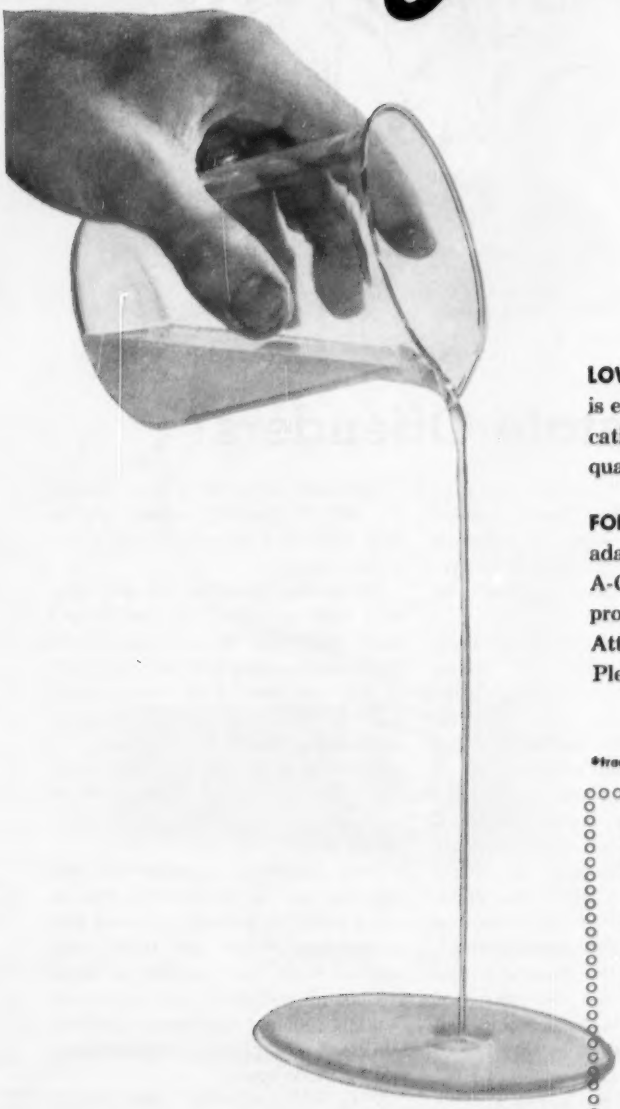

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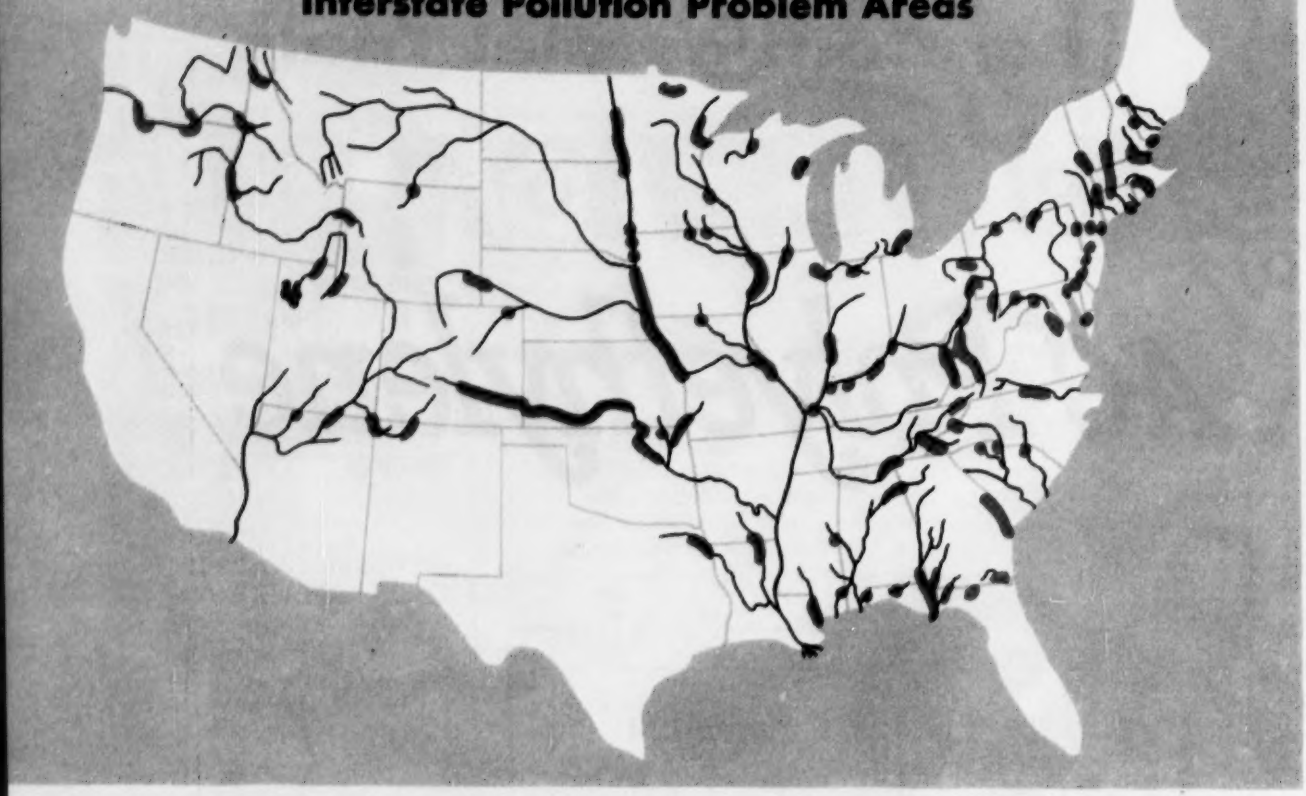


Crackdown on Interstate Offenders?

The U.S. Public Health Service may soon have a new weapon to use against interstate water pollution if Congress extends the 1948 Water Pollution Control Act in the form requested by the Eisenhower Administration.

Both House and Senate already have bills under consideration (*CW, Feb. 19, p. 19*) that would extend and broaden federal government powers under the act; chemical companies with plants in the 113 drainage areas (*see chart*) the USPHS considers present or potential problem points would be well advised to look to the adequacy of their effluent treatment plants.

At present, the federal government may take legal action against a company, municipality or other source of pollution of waters that flow across state lines only with the permission of the state involved. And though no case has reached this last-resort stage during the seven years that the Pollution Control Act has been on the books, enforcement could easily be stymied by such a permission requirement.

Teeth Needed: That being the case, the only way Public Health officials can be sure they have the authority to crack down on offenders is to have a provision for federal regulation on the books.

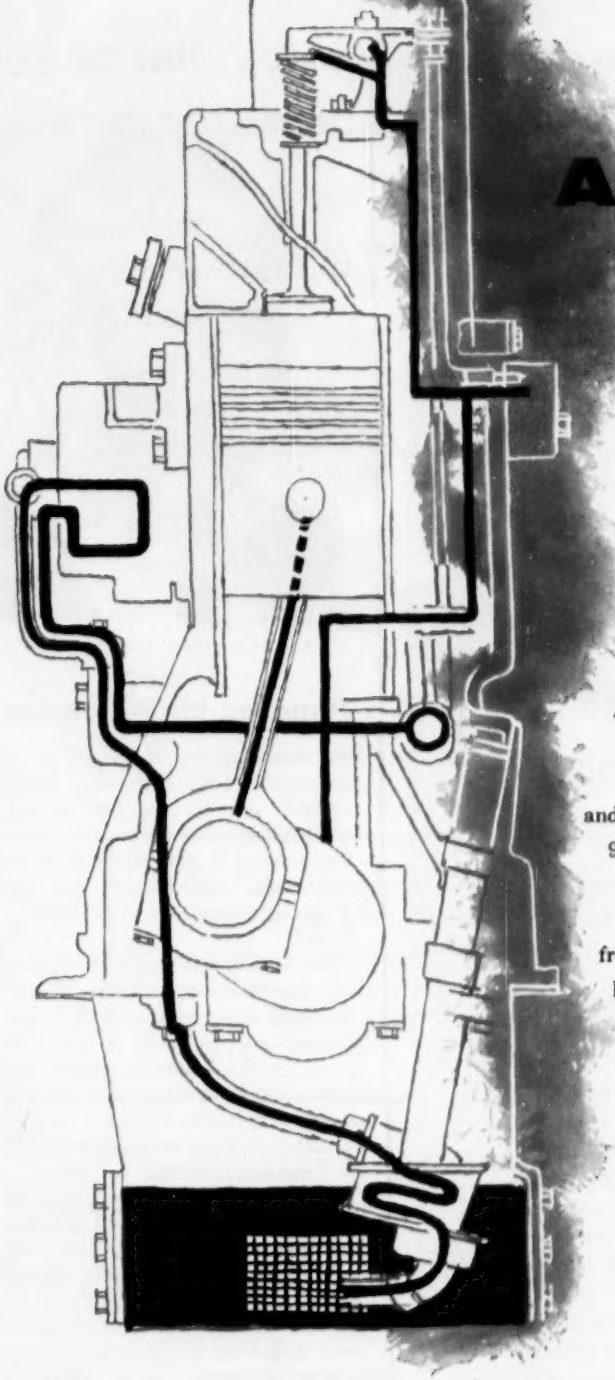
There's sure to be objections to this enforcement provision by "states-righters" when pollution legislation comes up for debate. The Administration, however, feels that the rights of states are adequately safeguarded.

Procedure that would be followed is this: whenever Surgeon General Leonard Scheele felt that interstate pollution was occurring, he would notify the offender, advise the Pollution Control Agency of that State, and set a "reasonable time" for abatement. If such abatement didn't occur within the time limit, the Secretary of Health-Education-Welfare would call a public hearing in the locality before an appointed board, on which H-E-W employees would be a minority. This board, on the basis of evidence, would determine whether interstate pollution was occurring, and what "reasonable and equitable" steps should be taken. After the offender had had "reasonable opportunity" to comply, the H-E-W Secretary could ask the U.S. Attorney General to bring suit in federal court.

Debatable Question: So far interstate water pollution violations haven't been numerous. But Public Health Service representatives feel that within the next few years transgressions will increase—not decrease. Reasons: increasing U.S. population; more intensive use of the nation's water supplies; the number of new pollutants produced as the country's manufacturing pattern changes.

Many industrial observers feel that this may be an oversimplification of water pollution matters, point out that corporations today are much concerned with the public relations aspects of pollution, are voluntarily building effluent treatment facilities into most new plants as standard operating procedure.

With such conflicting views, the interstate pollution question is certain to stir up hot debate on many fronts. And not the least of concerned bystanders will be chemical companies —caught in a federal-state tug-of-war.



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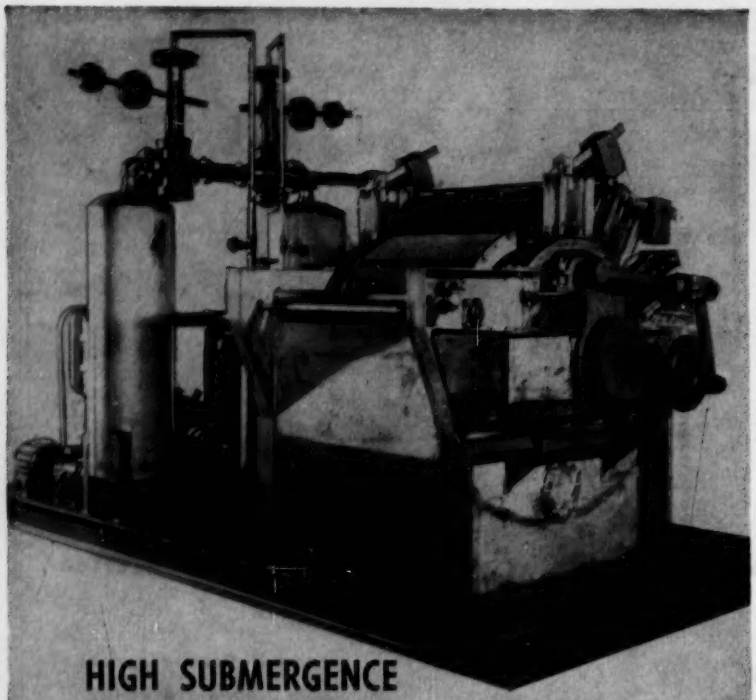

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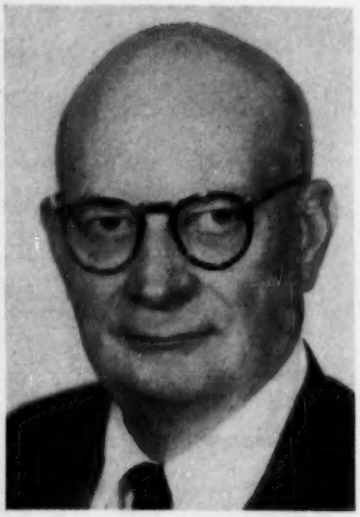

KILLEFFER: Offers chemistry as the . . .

Panacea for Pessimism

By shattering the arguments of the persistent Malthusiasts—who bewail scientific advances as "too efficient," D. H. Killeffer has rendered the chemical industry a real service in his recent book, "Two Ears of Corn, Two Blades of Grass" (D. Van Nostrand Co.).

No longer, Killeffer says, is there any fear that we shall soon denude the world of our means of subsistence. Science and technical progress has given mankind greater power and surer control over nature; mastery of chemical synthesis enables us to convert abundant raw materials into food, fuel and medicines that will some day virtually eliminate famine, want, disease and that greatest of all war-spawners—covetousness.

Humanity's future is being shaped today by what goes on in the country's laboratories; the greatest assurance Americans can have of insuring plenty (and peace) is a continuing supply of well-trained minds to carry on the search for new and better methods to develop the "kingdom of synthetics."

Coming at a time when many politicians loudly bemoan technical advances as the root of all evil, Killeffer's book should not only inspire the young, but also stir the imagination of those, somewhat older, who have become blasé, and weighed down by a darkly pessimistic outlook of the road ahead.

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- Plastisols
- Polyesters
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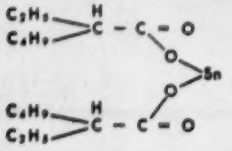
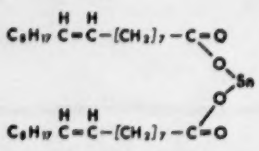
Now available in pilot plant and research quantities is an interesting group of new tin chemicals comprising a wide variety of solvent-free stannous soaps.



STANNOUS OCTOATE



STANNOUS OLEATE

Examples of these new tin soaps are Stannous Octoate and Stannous Oleate, which have the following properties:

CHEMICAL NAME	FORMULA	DESCRIPTION	SUGGESTED USES
Stannous Octoate	$Sn(C_8H_{15}O_2)_2$	A clear, light yellow, somewhat viscous fluid. Contains approximately 28% tin.	Used as a polymerization catalyst for curing silicone oil emulsions.
Stannous Oleate	$Sn(C_{18}H_{33}O_2)_2$	A clear yellow viscous liquid. Contains approximately 17% tin. Can be emulsified readily without adding protective colloids.	Experimentally used as a catalyst for curing silicone oil emulsions.

Other similar tin soaps which have been produced on a laboratory scale are:

STANNOUS CAPRATE
STANNOUS CAPROATE
STANNOUS CAPRYLATE
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Plants Not Annexed: Shell's big refinery and petrochemical works near Houston (*see picture, above*) will remain "out in the country." The Texas state supreme court is adhering to an earlier decision that nullified the move by the city of Deer Park to annex 1030 acres of land that included Shell's 440-acre site. In fighting the attempted annexation, Shell lost the first round in the trial court but won out on appeal.

•

Taxes and Patents: Two petroleum processing companies are in the court news this week.

• At Philadelphia, Federal Judge Lamar Cecil is trying the $255,814,800 suit in which Kinnear-Weed accuses Humble Oil & Refining of patent infringement, and Humble challenges the validity of the K-W patents.

• At New Orleans, the Circuit Court of Appeals has upheld the $160,000 claim of Pan American Refining for a refund from the U.S. Treasury for overpayment of 1942-47 taxes.

•

Second in Line: Rohm & Haas Co. (Philadelphia) has filed a patent suit against Roberts Chemicals, Inc. (Nitro, W. Va.), charging infringement of U.S. reissue patent 23,742 (under which Rohm & Haas sells its Dithane-brand fungicides). The action follows filing by Rohm & Haas of an infringement suit several months ago against E-Z Flo Chemical Co. (Lansing, Mich.) and its affiliate, Diamond Fertilizer Co. (Sandusky, O.).

Patent Suit Playback

Retrial of an old lawsuit before a new judge is beginning this week in U.S. District Court at Albuquerque, N.M., between two potash producers at Carlsbad, in southeast New Mexico.

The dispute between Potash Co. of America and Duval Sulphur & Potash Co. was filed nearly two years ago, with PCA charging that Duval was illegally using a PCA patented process of concentrating the potash ore. Early in 1954, Circuit Judge Sam Bratton —who served as trial judge in the case —ruled in favor of Duval, accepting the Duval contention that it had an "implied license." But at the same time, Judge Bratton held that there was an implied promise on the part of Duval to pay for that license. He retained jurisdiction of the case, pointing out that PCA could try to win judgment for "just" royalties.

In effect, the hearings beginning this week will amount to retrial of the old case, with some new facets to be considered. Presiding will be District Judge Waldo Rogers, who was sworn in several months ago.

Previously, in a similar case, PCA had accused International Minerals & Chemical Corp.—also a Carlsbad potash producer—of infringing the same patent. Judge Bratton ruled that IMCC had infringed, but that it would be inequitable to issue an injunction because PCA's 10-year delay in starting legal action constituted "an unreasonable length of time."

JUDGE ROGERS: In old lawsuit over process patent, a new referee.

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WOLFSON: Seen by some as considering Tennessee Products a . . .

Consolidation Stepping Stone

Tennessee Products & Chemical Corp. (Nashville, Tenn.), the company that rose from federal bankruptcy in 1938 to a $29.6-million sales volume last year, this week becomes part and parcel of Louis Wolfson's Merritt, Chapman & Scott Corp. (New York). Offers have gone out to stockholders to exchange shares of Tennessee Products common for shares in Merritt-Chapman (at a ratio of 1¼ for 1); henceforth, Tennessee Products will be known as a division of the giant contracting firm.

Back of the transaction lies a story of a company that has expanded its sales from $2 million to $29.6 million in 14 years, today produces a range of aromatic and agricultural chemicals as well as acetic acid, hydrochloric acid, wood tars and ferroalloys.

Stock of the Nashville concern has long been widely held; no single individual has ever owned more than a small percentage of shares outstanding. Its branching out into chemical production, however, came with its present president, Carl McFarlin, Sr., a mining engineer formerly associated with Whitwell Smokeless Fuel Co.

McFarlin's creed was simple enough —he determined to put every plant on a paying basis. Profits began to creep upward; then came World War II.

Blessing in Disguise: A request came from Washington that Tennessee Products consider the production of ferromanganese; this started the company out on what has proved to be a highly profitable line: output of ferrochrome, ferrosilicon, ferromanganese and silicomanganese.

Encouraged by the venture, McFarlin decided to take another flier, purchased a small sodium benzoate plant in Jersey City, N.J., and transferred its operations to Chattanooga. Production of other related products followed; benzaldehyde and benzyl benzoate units were added first, others were added in rapid succession.

L. A. Miller (former superintendent of Semet Solvay plants) was brought in to head up chemical activities; a research and development laboratory was built in Nashville to consider other production possibilities. (First development to come out of Tennessee Products' lab: a benzene hexachloride process.)

Most recent expansion in chemicals is the company's move into the plasticizer field. At year's end, plans were being laid to dismantle 50% of its insecticide-producing units and reassemble them (by mid-1955) to turn out plasticizers. Reason: company officials are convinced that the drought conditions in the South and Southwest (which cut operations to 40% of capacity last summer) are apt to continue; substantial stocks of insecticides are on hand for sale this year.

Further invasion of chemical terrain can be expected. Louis Wolfson promises no strings on Tennessee Products activities. But some stockholders are not convinced, view the merger move with some alarm. Reason: it has been alleged that the merger plan is "simply part of a plan to gain control of Montgomery Ward & Co. by using the capital and assets of the merged companies to purchase shares of stock in the Chicago firm."

McFARLINS, JR. AND SR.: Credited with putting the company on a paying basis.

It's what it doesn't have that makes it good!

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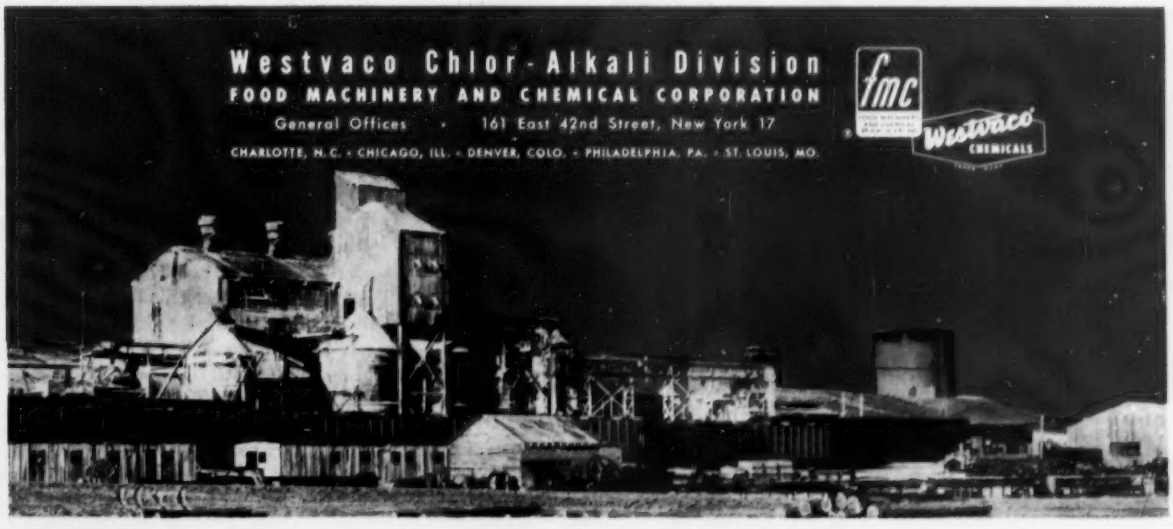
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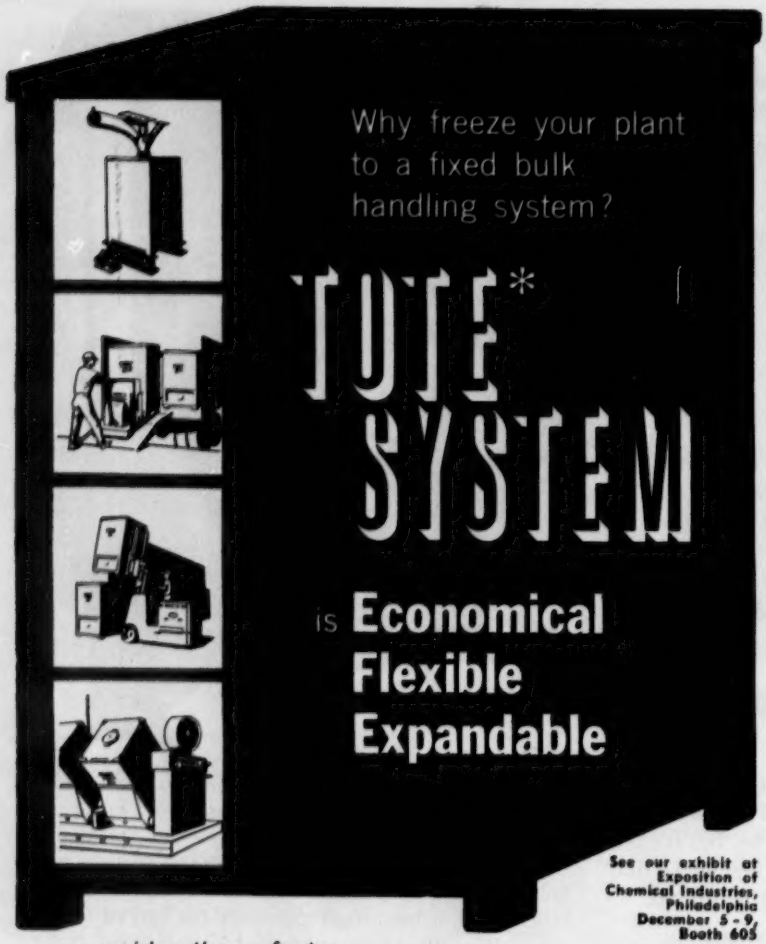
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JUDGE LEEDOM: On national labor board, a new 'swing man.'

LABOR. . . . . .

Full Line-up: Back at full strength after more than two months of limping along with gaps in its front ranks is the National Labor Relations Board. Acting swiftly and without debate, the Senate approved these two appointments by President Eisenhower:

- Boyd Leedom, justice of the South Dakota state supreme court, to become fifth member of the board, succeeding Albert Beeson, who served nine months on the board to fill a vacancy. Leedom will be "swing man" on the board, in that the four present members frequently are evenly divided in voting on decisions.
- Theophil Kammholz, Chicago attorney, to become general counsel of the NLRB, succeeding George Bott, whose four-year term ended late in December. Since then, unfair labor practice charges have piled up in that office, as action on such cases has to be initiated by the general counsel.

•

Intra-union Squabble: On many fronts, the Emergency Reorganization Committee—a rump union group that sprang up in the wake of the scrap in last August's convention of International Chemical Workers Union (AFL)—appears to be on the run. One place in which it's at least fighting a delaying action is at the Goodyear Engineering Corp. plant near Charlestown, Ind., where both ICWU and ERC claim to represent the approximately 1600 hourly-paid employees.

Following a one-day strike that seemed to be intended to prod the company into discharging the local ERC leaders, the company and the ICWU local have agreed on arbitration; the ERC has filed a declaratory judgment suit in a state court; and the ICWU has asked the federal district court at Louisville, Ky., to take the case.

•

Right to Work: Now it's 18 states that have "right-to-work" laws (*CW, March 5, p. 18*). Such a law has been passed by the Utah legislature and signed by Gov. J. Bracken Lee, who said he believes labor unions "will gain in stature if their membership can be gained through voluntary actions of employees."

Two state legislatures—Idaho and Indiana—have turned down right-to-work bills. Attempts to repeal existing right-to-work laws have been defeated in Arkansas, North Dakota, South Carolina and Tennessee.

•

Tale of Three Strikes: Among work stoppages affecting chemical process companies, there was one starting last week; another plant force voted to continue its strike; and a third group accepted arbitration as a basis for settlement.

• At Hurley and Santa Rita, N.M., Kennecott Copper's mill, smelter and open-pit mine were put out of production by a strike staged by International Mine, Mill & Smelter Workers (Ind.). A company official said the strike was an attempt to force the company to transfer a foreman. This wildcat stoppage lasted only two days, however.

• At Wyandotte, Mich., members of United Mine Workers, District 50, have voted to reject Wyandotte Chemicals Corp.'s second proposal to end the month-long strike over wage rates. The company's terms were not made public, but were understood to include wage increases ranging from 2¢ to 8¢/hour, a 3¢ cost-of-living increase under an escalator clause, and a no-strike provision.

• At one large chemical unit and at four other Publicker Industries plants in and near Philadelphia, production has resumed after a six-day strike by some 2500 members of United Distillery Workers (CIO), who had complained about an alleged "speed-up" on the production lines. The union eventually agreed to submit the dispute to arbitration.

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INDOIL Isooctyl Alcohol is of outstanding esterification quality. It is also an excellent solvent (b.p. approx. 184°C) and a starting point for various chemical syntheses including the manufacture of additives and surfactants.

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Initial Boiling Point, °C	184
Dry Point, °C	190
Specific Gravity, 20/20 °C	0.834
Refractive Index, n20/D	1.4320
Color, APHA	<10
Alcohol, Wt. %	99%+
Flash Point (Open Cup), °F	190

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Another Try, Better Chance

Despite unexpected strength shown by protectionists in Congress, the Eisenhower Administration is pressing forward with plans to demand more customs simplification this session. And this move—as in years past—will bring the Administration into direct conflict with some chemical companies.

The Treasury Dept. is due to send a customs simplification bill to Capitol Hill within the next couple of weeks. It will incorporate the main points of last year's Jenkins bill, which died in the Senate Finance Committee after having passed the House.

The synthetic organic chemical industry was influential in stalling the Jenkins bill to death last year, will undoubtedly throw its weight against the successor bill this time. The industry's opposition to the bill is based less upon its specific provisions than upon the fear that any tampering with the methods of evaluating imports for duty assessment might be an entering wedge for changing the "American selling price" system for fixing duty on a long list of coal-tar products. Under this system, the rate of duty is assessed on the basis of the U.S. selling price of competitive goods produced here. It has been estimated that for some products, this results in a "disguised tariff" of more than 100%.

Passage Predicted: But Democratic control of key Congressional committees will make it hard to stop the new customs simplification bill. The opposition to customs simplifications isn't anywhere nearly so broad and deep as the hostility to tariff-cutting proper. Protectionist strategy in the past has been to block simplification measures in committee. Bills that have reached the floor have usually been passed.

However, that strategy probably won't work this year, since the Democratic leadership of key committees of both houses is committed to push vigorously liberalization of foreign trade policy. Most observers predict that the proposed customs simplification bill will clear Congress unless it gets jammed behind other legislation, which doesn't look likely if the Administration sends the bill up on schedule.

The new proposed customs simplification bill would make two important changes in customs procedure:

- It would change the yardstick for evaluating imports for duty assessment to the "export value" from the "foreign value."
- It would smooth out the impact of exchange rate fluctuations on customs duties by permitting the Treasury to publish a list of par values of foreign currencies for the purpose of assessing duties. Par values would not change unless the value of a currency shifted more than 5% on the New York exchange.

Evaluation the Key: The provision for changing the method of evaluating imports is the key one. It would cut roughly in half delays, uncertainties and financial losses suffered by importers in getting their goods through customs. It is estimated that some 40,000 cases now jamming the customs courts stem from valuation problems.

The present system of evaluating imports is extremely complex and time-consuming. There are five alternative methods of determining value, with foreign value the preferred method. Foreign value is the usual wholesale price of a product in its domestic market. Determining it frequently involves lengthy investigations of foreign production and handling costs.

This labyrinth of red tape frequently snares importers in costly delays and litigation, leads to many inequities. Delays in evaluating imports often lead to losses for importers.

The Administration's bill will be designed to clear out the underbrush of regulations that—as many experts assert—restricts trade more than tariffs themselves. Chemical companies don't object to having some of the red tape snipped, but will ask Congress to go easy on revising the evaluation rules.

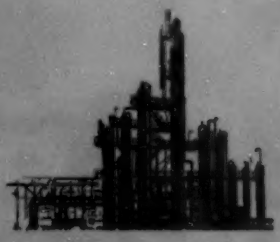
End of an Era?

FREEPORT SULPHUR CO. would seem to be finally pulling out of Freeport, Tex.—the town from which it gots its name. The Tarpon Inn (*see cut*), which once housed company workers and served as the town's social mecca, has been razed; Freeport's executive mansion is up for sale.

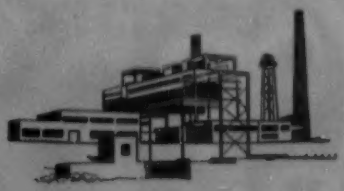
Reasons for the move: operational costs at nearby Hoskins Mound have been mounting recently; sulfur reserves there are close to exhaustion. When the precise order to cease and desist will come, company executives won't predict. Their only comment: "It won't be long now."

Lummus gives you

Petroleum Refineries

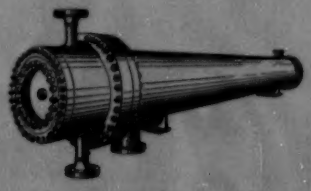


Chemical and Petrochemical Plants

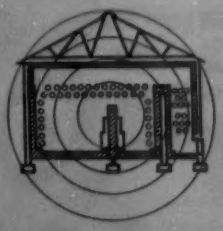


Power Plants

maximum return for



Manufacture of Heat Transfer Equipment
(Heat Exchanger Division)



Manufacture of Oil Heaters
(Oil Heater Division)

Shop Fabrication and
Installation of Pressure Piping
(Fabricated Piping Division)

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In the past half century Lummus has designed, engineered and constructed over 700 major installations throughout the world. The excellent operating records of these plants indicate that the coordinated directing of a project from idea to startup is the best possible guarantee of a profitable investment. Our staff and facilities can complement your own – on your next project.

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LUMMUS

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How big should a bubble be?

Most people take bubbles for granted, but not those who are in the business of manufacturing plasterboard.

Here bubbles are very important. Especially the kind of bubbles you can get with Atlantic ULTRAWETS.

These miracle chemicals are part of the growing Atlantic family of petrochemicals. That's why you see the miniature oil refinery in the picture.

Used in the manufacture of plasterboard, the ULTRAWETS make bubbles of more uniform size and distribution in the wet plaster. Less water is needed, so drying is faster. Result: A lighter, stronger plasterboard—plus faster production with resultant savings.

Atlantic ULTRAWETS have outstanding ability to emulsify non-soluble substances, hold solids in suspension, and aid in the penetration of water solutions. They offer matchless advantages to a wide variety of industries.

Atlantic research and long experience can help you put these advantages to work in your product. We'll be glad to work with your engineers to develop new and improved products—or to cut costs. Write for complete information to The Atlantic Refining Company, Dept. H-32, 260 So. Broad Street, Philadelphia 1, Pa.

ATLANTIC
PETROLEUM
CHEMICALS

Philadelphia, Providence, Charlotte, Chicago

In the West: L. H. Butcher Co.

In Canada: Naugatuck Chemicals Division of Dominion Rubber Company, Ltd.

In Europe: Atlantic Chemicals SAB, Antwerp, Belgium

South American Investments Open to Chemical Producers

	What	Where	Capital Needed
1	A caustic-chlorine plant; capacity: 50 tons caustic, 44 tons chlorine/day.	Cuba	$4 million
2	Superphosphate plant	Argentina	Not listed; management participation also sought
3	Fertilizer plant	Colombia	$500,000 in exchange for 50% interest
4	Fertilizer plant	Venezuela	$3 million in exchange for controlling interest
5	Lime plant; capacity, 23,000 tons/year	Cuba	Not listed
6	Soap, detergent plant	Costa Rica	$200,000 plus technical aid
7	Pharmaceutical plant	Ecuador	$500,000 plus technical aid
8	Drug and cosmetic packaging plant	Ecuador	$500,000 in exchange for ⅓ net profits

Melding of Interests

Like baseball pilots at a rookies' spring training camp, chemical executives descended on New Orleans last week to attend the Inter-American Investment Council. The U.S. industrialists came to hear about potential profitable investment opportunities in Latin America, stayed to hear about the fourscore projects currently in need of capital financing.

Basic idea behind the conference: to establish direct contact between U.S. investors and the smaller Latin American businessmen who normally would find it difficult to obtain investment capital abroad. Specific business ventures were discussed; potential markets and raw materials were considered.

Healthy Atmosphere: Reaction of chemical men attending the conference was immediate and enthusiastic. Although loth to predict what concrete results may stem from the meeting, they were frankly interested in the sort of projects (*see table above*) offered as investment lures.

"A number of us honestly expected to be met with the usual come-ons," admits one New York vice-president. "But that didn't seem to be the case at all. These were legitimate, hard-driving businessmen—interested in getting ahead, and willing to give up a reasonable interest return in exchange for our dollar aid. "A conference like this is the best possible means of achieving inter-American rapport," agrees another. "Many U.S. companies have been badly scared off of South American ventures in recent years because of unpleasant business dealings there. They're suffering because of such sentiment; we're losing a fine expansion opportunity."

"What pleased me," states a third, "is that we had a chance to meet some of the executives of smaller South American chemical firms. Normally we just deal with the big companies; this was an opportunity to get together with the bulk and sinew of South American industry."

FOA and State Dept. representatives attending the New Orleans conference are equally outspoken in their praise. "Tremendous strides in understanding one another's problems can be made this way," states one attender. "In a public relations sense alone, the council is well worth all the effort we put in it."

CHEMICAL CERAMIC

VACUUM FILTERS

"U. S." chemical ceramic vacuum filters are made in three ceramic bodies: white chemical porcelain; standard "Denstone" chemical stoneware; and "Ceratherm-550" heat-shock-resistant chemical stoneware. All three bodies will withstand a complete vacuum.

All three are fully resistant to all acids (except hydrofluoric), all alkalies (except hot caustics), and all solvents. The bodies are dense, non-porous, will not absorb odors.

Available in a range of types, including two-piece units with removable support plates, two-piece units with integral support plates, and three-piece sectional units. Sizes range from small laboratory filters up to units of 100 gallon capacity.

Write for Bulletin F-40 72E

U. S. STONEWARE
Akron 9, Ohio

Get your chlorinated methanes and muriatic acid from Diamond

Dichloromethane—CH_2Cl_2

Diamond makes Refrigeration Grade (RG) and Paint Remover Grade (PRG). It is liquid at ordinary temperatures and pressures and is shipped in tank cars, drums, and cans. A little water won't hurt its stability. Underwriters' rates it nonflammable under ordinary heat.

Chloromethane—CH_3Cl

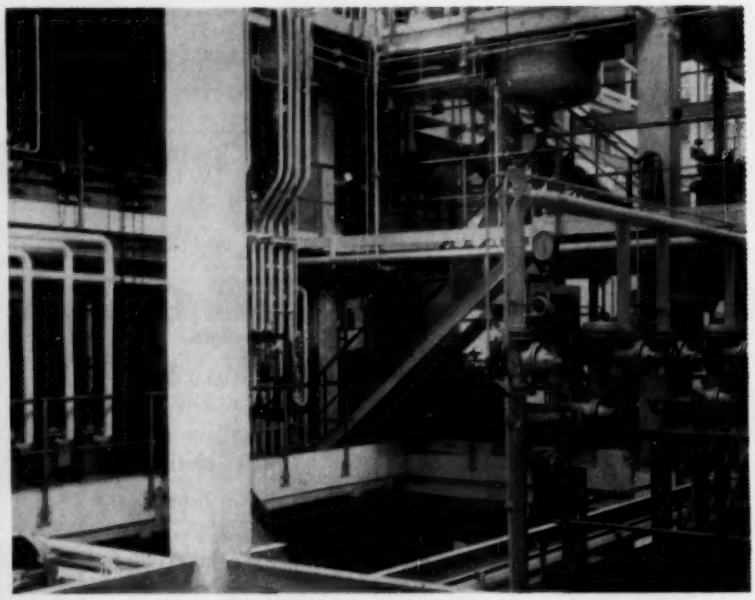
Methyl Chloride resists oxidation up to 200 C. It has fine thermal stability, with little decomposition below 400 C. Shipped in tank cars only as liquefied gas under pressure.

Diamond ships Technical grade in tank cars, drums, cans; U.S.P. grade in cans, returnable drums. Use both grades with common materials up to 120 C.

We produce three grades: commercial, water white, A.C.A. Commercial and water white are available in strengths of 18, 20 and 22 Bé. All grades are highly pure and arsenic-free. They're shipped in rubber-lined cars and trucks.

One of Diamond's Technical Service Representatives will be glad to help you on any problem or possible use involving chlorinated methanes. Call your nearby DIAMOND Sales Office, or write DIAMOND ALKALI COMPANY, 300 Union Commerce Building, Cleveland 14, Ohio.

DIAMOND ALKALI COMPANY
Diamond Chemicals



HOECHST: Penicillin units started production in 1950, are currently expanding.

FOREIGN. . . . . .

Drug Exports/West Germany: Western Germany's exports of pharmaceuticals rose from about 223 million marks in 1953 to 261 million marks in 1954—but still only account for 8% of world trade in drugs. Main difficulty in expanding trade: foreign competitors (especially Switzerland and the U.S.) have established themselves firmly in some of Germany's former traditional export markets (the Near East and South America); other important markets (in eastern and southeastern Europe) are closed to the West Germans.

Low prices on the home market also hampered producers in 1954, but the outlook here is brighter in '55. Reason: increasing economic stability gives German purchasers more ready cash for pharmaceutical preparations.

•

Styrene Monomer/Brazil: Firestone Tire & Rubber Co. has joined with Koppers Co. (Pittsburgh) to form a new company to build a styrene monomer plant in Cubatao, Brazil, to supply Brazilian polystyrene manufacturers. Estimated capacity: 10 million lbs./year.

•

U.S. Drug Aid/Chile: A shuffle in the Chilean cabinet last week climaxed a difference of opinion between the Minister of Finance and the Minister of Economics over exchange rates on essential imports (including cortisone and Terramycin). Sr. Cuevas, former finance chief, favored establishing exchange rates near free market levels, opposed the use of preferential rates. His successor, Sr. Recabarren, goes along with the exchange rate of 200 pesos to the U.S. dollar for "most commodities," backs a special rate of 110 pesos/dollar for essential products.

This spells a break for U.S. pharmaceutical exporters if the decree (already signed by President Ibanez) passes through Chilean legal channels.

•

British/Red China Trade: An unofficial British trade mission, which recently visited Red China, has signed over 130 contracts (worth £4 million) with Chinese state trading organizations. Special feature of the pacts, says the New China News Agency, is the "significant variety of Chinese exports offered." (List includes coal-tar products, soda ash, essential oils, minerals and chemicals.) British producers in return are committed to export drugs and dyestuffs.

Most of the British firms represented on the mission have been dealing regularly with China during the past 18 months so that discussions on the forms of contract and other formalities were handled quickly. This time, however, the Chinese were willing to modify their usual payment demands.

Strengthening Position

Notice was served this week that Sherwin-Williams Co. will go ahead with full-scale production plans for a $1.5-2 million phthalocyanine plant.

The move comes after 15 years of basic research, numerous studies into a knotted patent situation, and culmination of five years of pilot-plant operations. Construction will start "as soon as the weather permits;" the decision to go ahead is interpreted by company spokesmen to mean that S-W has determined to consolidate its position in the paint industry and give Du Pont (scheduled to build a $4-million phthalocyanine plant) a run for its money.

Sherwin-Williams researchers point out, as history, that phthalocyanine is relatively new in the pigment field. Imperial Chemical Industries first started commercial production in 1935-36 in England; Du Pont and General Aniline put in production units in the U.S. shortly thereafter.

Basic difficulty as far as Sherwin-Williams was concerned was that ICI held most of the valuable patents; S-W couldn't hope to compete commercially with Du Pont.

N. E. Van Stone (executive general manager, Institutional Special Products) was convinced that the color blue was the one weak link in the whole color field, however, and started his chemists nosing into its production.

Proof of the validity of his reasoning: in 1946, 300,000 lbs. of phthalo-

VAN STONE: The drive behind expansion into phthalocyanine blue.

. . . that you would demand an unvarying flavor in your orange juice. And because oranges vary so widely in flavor, the makers of famous Minute Maid fresh frozen orange juice had a problem in making your favorite morning drink with a uniformly delicious flavor. They solved it by blending juices from many groves and picking seasons.

And VISQUEEN film helped solve the problem. VISQUEEN lines the 55 gallon drums used to store the concentrate until time for blending.

VISQUEEN is ideal for this purpose because it is unaffected by most acids, is strong and pliable even at 72 degrees below zero, is always uniform, 100% pure, tasteless and odorless.

The Minute Maid problem is only one of hundreds VISQUEEN has solved. Whatever your packaging, wrapping or protecting problem—a converter of VISQUEEN will be glad to help. He's backed by the superior know-how of The VISKING Corporation in this field.

IMPORTANT! VISQUEEN film is all polyethylene, but not all polyethylene is VISQUEEN. Only VISQUEEN, produced by process of U. S. Patents No. 2461975 and 2632206, has the benefit of research and resources of The VISKING Corporation.

VISQUEEN® film

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In England: British VISQUEEN Limited, Stevenage

The VISKING Corporation, Box CW3-1410, Plastics Division, Terre Haute, Indiana

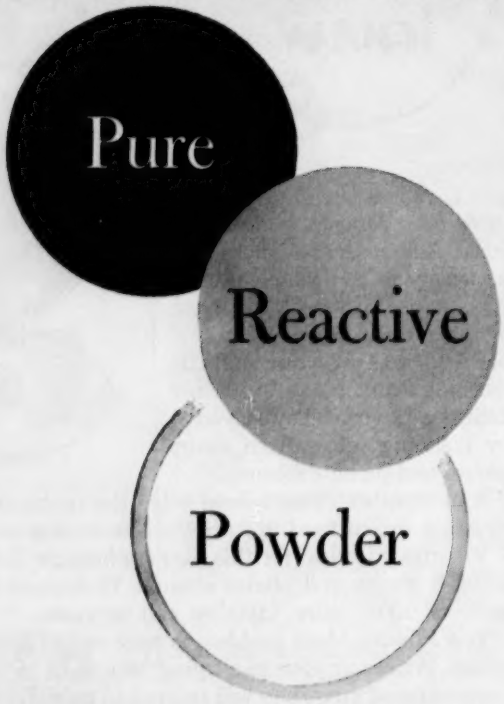
Name_____

Title_____

Products_____

New ---------- from Metal Hydrides

Calcium Boride CaB_6



From Metal Hydrides comes the amazing new, highly versatile *calcium boride* (CaB_6). This new, finely divided compound of calcium and boron is 97% to 99% pure. A light brown powder, made up of agglomerated particles of sub-micron to one micron in size, CaB_6 is stable in dry air. With oxidizing agents, Metal Hydrides' *calcium boride* reacts vigorously.

SUGGESTED USES FOR CALCIUM BORIDE

1. *Preparation of calcium boride parts by powder metallurgy techniques.*
2. *As a boriding agent with metal powders.*
3. *Solid propellant mixtures.*
4. *Surface hardening mixtures.*
5. *Refractory abrasives and ceramic composition.*
6. *Reducing agent for metal oxides.*

Availability:
Research and pilot production quantities.
Write for technical bulletin.

Pioneers In Hydrogen Compounds

MH **Metal Hydrides** INCORPORATED

22 CONGRESS ST., BEVERLY, MASS.

cyanine blue was used by paint manufacturers; last year the figure had jumped to 3 million lbs.*

Bold Estimate: From the point of view of the economic sense behind its move, S-W points out that it has, readily available, 6 million lbs. of captive phthalic anhydride, expects not only to provide sufficient phthalocyanine blue to supply its own needs, but also to have surplus material for sale.

Some seven or eight other companies are known to be scanning production possibilities carefully, but here Van Stone maintains S-W has nothing to fear. Reason: "They'll be forced to use cross-licensing agreement to get into production any time within the immediate future.

To strictly chemical producers it's a strong challenge. Once again, a paint manufacturer has taken up the gauntlet, will turn out its own pigments to cut costs, strengthen its start-to-finish retail-store items.

*Tariff Commission figures.

KEY CHANGES. . .

W. E. McGuirk, Jr., to director, Davison Chemical Co. Division, W. R. Grace & Co. (Baltimore).

Edmund R. Beckwith, Jr. and **E. Roth Janes,** to vice-presidents, Warner-Chilcott Laboratories (New York).

John S. Wilson, Jr. and **Norman Oxley,** to assistant controllers, Allied Chemical & Dye Corp. (New York).

Jerry J. Craig, to treasurer, Sun Chemical Corp. (Long Island City).

Francis J. Carr, to vice-president, and **Harold A. Brinner,** to controller, Mallinckrodt Chemical Works (St. Louis).

L. C. Duncan, to general manager, Lederle Laboratories Division, and **V. E. Atkins,** to general manager, Organic Chemicals Div., American Cyanamid Co. (New York).

John W. Stevens, to vice-president, sales, Reichhold Chemicals, Inc. (New York).

Henry W. Gadsden, to administrative vice-president, Merck & Co., Inc. (Rahway, N.J.).

Leopold Eckler, to vice-president and general manager, Ansco Division, General Aniline & Film Corp. (New York).

SWIFT'S RED OILS INVITE COMPARISON!

SWIFT'S RED OILS

Characteristics	Oleic Acid No. 905	Red Oil No. 805	Red Oil No. 810	Saponification Grade Red Oil
Titer (°C)	5 Max.	5 Max.	8-10	18 Max.
FAC	.....	7 Max.	7 Max.	21 Max.
Color (Lovibond 1¼" Cel.)	10 Y/1 R. Max.	30 Y/3 R. Max.	30 Y/3 R. Max.	.....
(Lovibond 5¼" Cel.)	98-102%	.....	.....	.....
FFA (As Oleic)	195-204	97-101%	97-101%	95% Min.
Acid No.	90-96	193-202	193-202	190 Min.
Iodine No.	198-204	88-95	88-93	83-90
Saponification No.	1.0% Max.	194-204	194-204	193-203
Unsaponifiable		3% Max.	2.5% Max.	3% Max.

✔Not too long ago, Red Oils, like many staple industrial materials, were ordered simply as red oils . . . one or two grades served a wide range of needs. Specifications were of a broad and flexible nature.

Today, to meet the competitive needs of modern industry, Swift & Co. has developed four standard grades of Red Oil.

Check the specifications above and see which product fits your requirements. Because of their *exceptionally good color and color stability* many have found they could use Red Oil No. 805 and No. 810 in place of premium priced products, and here's why:

Made from the finest raw materials available, Swift's Red Oils are produced under highly controlled conditions. A unique low temperature solvent process permits the *selective* extraction of color bodies and other impurities. The manufacturing control made possible by such a process is your assurance of a reliable source for a wide variety of "application pure" Red Oil products.

Yes, for obscure as well as for common application, Swift's Red Oils *invite* comparison. So, next time you buy, don't order Red Oil . . . specify *Swift's* in the grade tailored to your needs. Write for a trial order at quantity price.

✔Write for new 8 page folder on Swift's Industrial Oil Products

Oleic Acid (Red Oil) • Animal Fatty Acids • Vegetable Fatty Acids • Stearic Acids • Hydrogenated Fatty Acids • Larex (Swift's Lard Oils) • Neatex (Swift's Neat's-foot Oils) • Swift's Sperm Oils • Spermaceti U.S.P. • Monoglycerides • Sulfonated Oils • Textile Processing Oils • Anti-Foam Agents • Glycerine • Tallows • Palmex (for Steel Mills) • Hydrogenated Glycerides.

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TONNAGE **MOLYBDENUM** CHEMICALS

To Precise Specifications

AMMONIUM MOLYBDATE, REAGENT

$(NH_4)_6Mo_7O_{24}.4H_2O$ F.W. 1235.95

Meets A.C.S. Specifications

Assay (as MoO_3)	81.0-83.0%	
Insoluble Matter	0.005	% Max.
Chloride (Cl)	0.001	% Max.
Nitrate (NO_3)	0.003	% Max.
Phosphate (PO_4)	0.0005	% Max.
Sulfate (SO_4)	0.005	% Max.
Heavy Metals (as Pb)	0.001	% Max.
Magnesium and Allied Cations	0.020	% Max.
pH of 5% Solution at 25°C	5.0-5.5	

Particle Size (Mesh): at least 95% thru U.S. No. 20 Sieve
at least 90% on U.S. No. 140 Sieve

AMMONIUM MOLYBDATE, C.P.

$(NH_4)_6Mo_7O_{24}.4H_2O$ F.W. 1235.95

Assay (as MoO_3)	81.0-83.0%	
Insoluble Matter	0.010	% Max.
Chloride (Cl)	0.005	% Max.
Nitrate (NO_3)	0.010	% Max.
Phosphate (PO_4)	0.001	% Max.
Sulfate (SO_4)	0.010	% Max.
Heavy Metals (as Pb)	0.003	% Max.
pH of 5% Solution at 25°C	5.0-5.5	

Particle Size (Mesh): at least 95% thru U.S. No. 20 Sieve
at least 90% on U.S. No. 140 Sieve

SODIUM MOLYBDATE, TECHNICAL

Na_2MoO_4 F.W. 205.94

Assay (Na_2MoO_4)	98.0 % Min.
Insoluble Matter	0.050% Max.
Chloride (Cl)	0.20 % Max.
Sulfate (SO_4)	0.20 % Max.
pH of 5% Solution at 25°C	9.0-10.0

MOLYBDIC ACID, REAGENT

Meets A.C.S. Specifications

Assay (as MoO_3)	85.0	% Min.
Insoluble in NH_4OH	0.010	% Max.
Chloride (Cl)	0.002	% Max.
Phosphate (PO_4)	0.0005%	Max.
Sulfate (SO_4)	0.020	% Max.
Heavy Metals (as Pb)	0.003	% Max.

Particle Size (Mesh): at least 97% thru U.S. No. 40 Sieve
at least 10% thru U.S. No. 325 Sieve

MOLYBDENUM TRIOXIDE, REAGENT

MoO_3 F.W. 143.95

Meets A.C.S. Specifications

Assay (MoO_3)	99.5	% Min.
Insoluble in NH_4OH	0.010	% Max.
Chloride (Cl)	0.002	% Max.
Nitrate (NO_3)	0.003	% Max.
Phosphate (PO_4)	0.0005%	Max.
Sulfate (SO_4)	0.020	% Max.
Ammonium (NH_4)	0.001	% Max.
Heavy Metals (as Pb)	0.005	% Max.

Particle Size (Mesh): at least 90% thru U.S. No. 40 Sieve
at least 10% thru U.S. No. 325 Sieve

USES

Molybdenum compounds are widely used in the production of catalysts, phosphomolybdic-phosphotungstic lake colors, molybdate chrome orange pigments, protective and decorative metal finishes, soil additives, and pure molybdenum metal for radio tubes, X-ray tubes, and incandescent lamps. They have specific uses in pharmaceutical, leather and textile manufacture.

In addition to the above mentioned Molybdenum Chemicals, Baker now supplies Cobalt, Nickel, and Lead Molybdate.

Technical product data, samples, and prices will gladly be forwarded upon request.

Address your letter to J. T. Baker Chemical Co., *Executive Offices,* Phillipsburg, New Jersey.

Baker CHEMICAL

Baker Chemicals

REAGENT • FINE • INDUSTRIAL

C W Report

by Aaron Levenstein

ILLUSTRATIONS BY GORDON DRAPER

Human Relations: The Forgotten Function of Management

For all its admitted prowess, management in the chemical process industries still shows itself deficient in its grasp of the human problem in industry.

The advent of automation, far from relieving disturbances of the worker, has made his anxiety all the more acute, increased the stress and strain under which he must labor.

Result: it is time now for management to reorient itself and squarely face up to the problems of the individual at work.

Business is on the verge of a second industrial revolution. Automation is speeding up the pace of mechanization, of technological changes, and of transformations in products, markets and processes. In turn, these transformations are festering problems in human relations at a faster clip.

Workers are forced to learn new skills, to become more flexible—or be left behind. They are faced with loss of jobs and opportunities for advancement, with a diminishing sense of purpose and of identification. This gives rise to frustration and discontent, and as a result, leaves management with a less efficient, more rapidly turning over labor force in today's high-cost, keenly competitive production scramble.

Paradoxically, management believes it is adequate to train itself in the techniques of economics and technol-

Meet the Author

AARON LEVENSTEIN, author ("Labor Today and Tomorrow") and university lecturer, has more than academic interest in the subject of human relations. As directing editor of the Associate Membership Division of the Research Institute of America, he advises 50,000 executives and supervisors on the use of tested human relations techniques.

A graduate of New York Law School, he served as an attorney and business advisor to unions before going to RIA in 1940. He still keeps his finger on labor's collective pulse by serving as a member of the Panel of Arbitrators of the American Arbitration Assn.

Do You Have a Problem in Human Relations?

You may have and not be aware of it. Here are . . .

. . . the symptons:	. . . the remedies:
• friction between technical and nontechnical personnel	• arrange for more frequent consultations between groups
• high turnover	• encourage personal contact
• low productivity	• present clear picture of company operations
• high accident rate	• spell out employee's part in over-all picture
• numerous grievances	• spell out job potentials and qualifications
• strikes	• help employee fulfill potential through development programs, tuition payments, etc.
• high absenteeism	• recognize individual progress by token raises, greater responsibility, etc.
• formation of intragroup cliques	• be responsive to suggestion
• lack of cooperation among personnel	• keep employees informed
• executive favortism	• guard against executive favortism
• low employee regard for job and company	• don't use authority as sole measure of success
• lack of enthusiasm	• promote from within
• few cost-saving suggestions	• salvage personnel, provide for those who can't be salvaged
• identification of authority with success	
• little personal identification with company	
• little understanding of over-all operations	
• vagueness concerning personal potential	

C W Report

ogy, yet spends the greatest part of its time dealing with people. In heading into change, executives readily see the need for salvaging material inventory, but overlook the valuable potential in human salvage, which can often spell the difference between success and failure.

Professionalism Sets Pattern

The chemical process industry, among the most suitable for automation, is concomitantly also among the most susceptible to problems of the human element. Many chemical companies are giving increasing attention to the changing quality of their human relations, but it would be idle to pretend that any neatly packaged solutions are at hand. To a very large extent, there are no solutions—only processes of adjustments to the new realities.

And these adjustments will require, first of all, an awareness of the facts, a knowledge of what is now being done to face up to them. Toward this end, the Research Institute of America, using opinion surveys and field interviews among supervisors, recently took a first-hand look at what is happening in a cross-section of U. S and Canadian industry. By isolating the chemical and allied firms in the survey, it is possible to reach some tentative opinions about the human element in the process industry.

Harmonious Coexistence: At the outset, it is noted that chemical process companies seem to enjoy somewhat better human relations than most. Among the significant guideposts drawn from the data:

• Attitude of supervisors toward higher management is more favorable than that found in most industries. This is a fairly reliable measure of executive and employee attitudes as well.

• More so than in other industries, process supervisors feel that management is receptive to their suggestions; and this, of course, generally makes for happy relationships.

• Supervisors' trust in their job security is greater than that of supervisors in nonchemical companies. This may stem either from their assessment of the chemical industry's importance to the national economy or from confidence in their own worth as highly skilled or professionally trained personnel—or both.

Out of this high esteem for the professional quality of their work may come a fundamental lesson in human relations. Participation in something akin to science—the religion of our mechanistic age—may afford employees in the chemical industry a sense of value in their work that could well be the springboard for better relations. The data are not complete, but there are signs that this professionalism gives the chemical industry a unique advantage over the others.

Ever since the basic research study made by the Harvard sociologists at the Hawthorne plant of Western Electric, human relations experts have believed that the major instrument for better human relations must be the strengthening of the employee's sense of purpose in what he does. The present findings seem to substantiate this. In any case, the possibility is definitely worth further examination.

Two-Edged Tool: On the other hand, the scientific nature of the chemical industry also has a very serious disadvantage. From our survey, we were surprised to find that in the chemical and allied industries there is a greater preoccupation with the problem of hostility between the different levels of management itself. While this problem is common to most industries, here it is apparently magnified by the omnipresence of professionalism.

In company after company in both the U.S. and Canada, we heard this refrain: "Our technically trained and nontechnically trained people just don't get along with each other. Executives and supervisors from technical backgrounds have trouble with their opposite numbers on the production line or in the office."

To be sure, there are comparable

difficulties in general industry between, say a sales department and a production department or between a production division and a maintenance division. But these frictions are fairly casual and generally remediable. In the chemical industry, on the other hand, a permanent cold war seems to be taking place between technical groups and general executives, between staff specialists and foremen. This matter of hostility, then, all the more significant because of its singularity, presents to the process industry its first problem in human adjustment — a problem that reaches all the way up through the various management levels.

Technology Widens Rift

In every business, of course, there are factors that tend to disunite the management group: preoccupation with their own departments, conflicting pressures from other executives, different executive work habits, personal value systems, etc. All of these exist in the chemical process industry as well; but each of them is exaggerated by the wide difference in background of the man whose formal training has been technical and of the man who has come up through the less formalized, but no less enriching, world of executive experience.

Inimical Missionaries: In the course of our survey, we repeatedly ran into high-level research people who complained, "We pioneer the new products and the new ways of manufacturing old products, but the resistance to change on the part of our production people and the consuming public blocks us, delays wide acceptance of our laboratory findings."

'The researcher is an egghead.'

Researchers and production men just don't get along.

In one company, the technical group frankly spoke of themselves as "missionaries of better things ahead," openly described their frustration at feeling themselves blocked by colleagues and customers who could not keep up with them. The significance here, perhaps, is that they are unaware that their attitude is alienating the very people whose cooperation they need.

In view of the important contributions made by the laboratory, this attitude of the researchers is completely understandable. But, more important from the standpoint of human relations, every time it is communicated to the nonelect, teamwork is bound to suffer. And the surprising note of hostility expressed toward the consuming public also deserves attention, particularly in those companies that are "selling service with the product incidental."

Egg-Shaped View: From production men, we often obtained the converse though similarly intense attitude: "The researcher is an egghead who doesn't know what it means to meet a production schedule." This was the frank attitude of the plant manager in the plastics and resins division of a large corporation. Recounting an experience with the technical group in the company's Chicago office, he continued:

"They put the heat on us. We were told to run an experimental job in the plant for the technical division during the summer maintenance shutdown. When I talked it over with my men, every one of them said right away that it would cost us more to do the job during the shutdown than it would if we did it under normal conditions. We'd have to work some of our foremen 16 straight hours to handle the job.

"Our maintenance shutdown is aimed at overhauling our power station boilers; and this experimental job would require us to keep at least two boilers going to power the production equipment." And these words do not fully reflect the heat and bitter frustration felt by this man.

In the chemical industry, this factional hostility presents a particularly serious challenge to harmonious human relations. It creates a fissure between the technical and nontechnical groups. The existence of this fissure, in turn, effects a further withdrawal of one group from another. What is more, this tendency toward conflict, additionally aggravated by

Hostility between technical men and laymen presents a particularly serious challenge.

C W Report

the barrier of formal education, seems to affect even intragroup relationships. Men with lesser training feel rejected by those with better backgrounds.

Picking Up the Gauntlet: Unfortunately, in this instance, management often follows the path of least resistance, isolates the groups and reduces their contacts even more. But this only results in a compounding of the friction, a lessening of cooperation, and the loss of many affirmative benefits that would derive from increased communication between the groups.

The human relations expert, on the other hand, neatly inserts this problem under the traditional heading of Communications. "If only there had been consultation between the two sides" is a familiar cry here. But, as in most instances of human relations, the answer does not lie in the failure to take a given step. Meetings have been held in the past, and have led to bitter recrimination instead of sweet agreement.

True, meetings are worthwhile, but their effectiveness does not stem from the mere fact that they are held. They must be part of a continuing pattern of contact. Constant association, in matters of casual personal interest as well as in matters of fundamental business decision, is the long road that must be followed if understanding and cooperation are to be achieved. To bring men together only when they are likely to disagree is to widen the gap between them, not to narrow it.

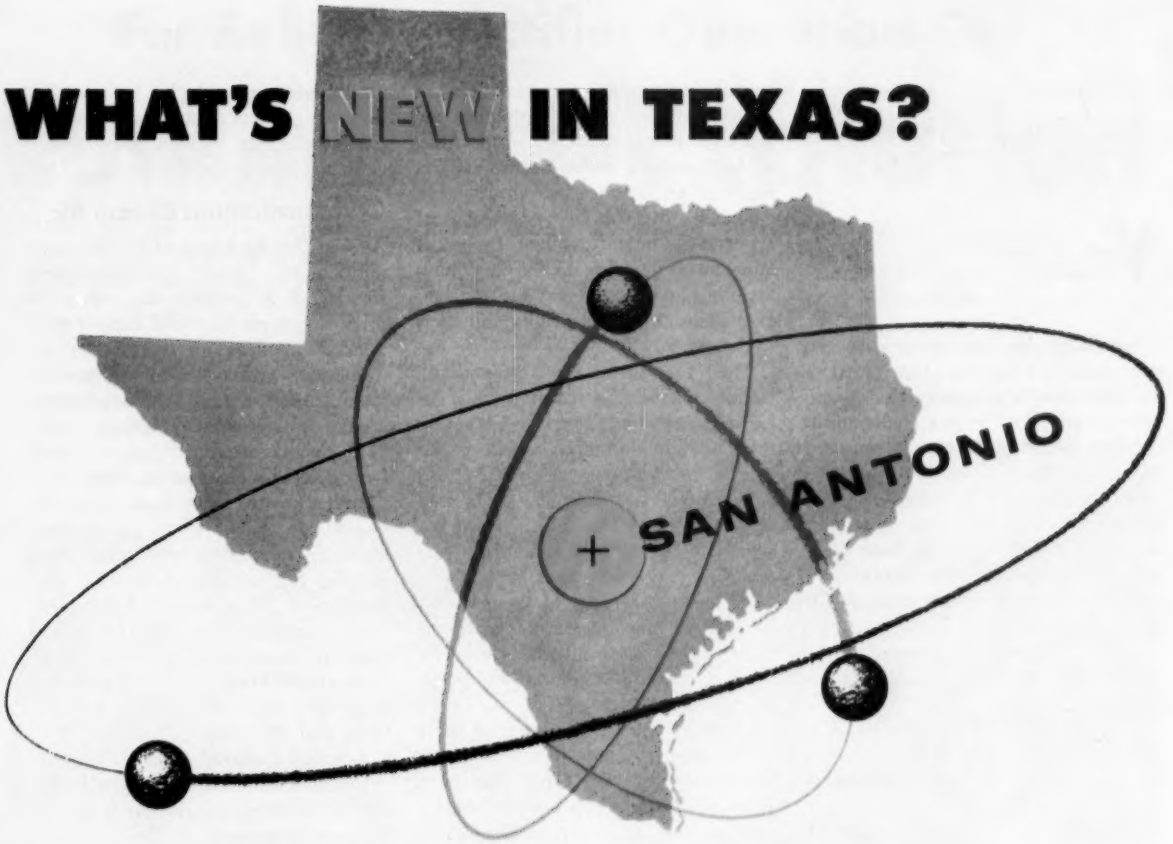
A Matter of Favoritism: The problem of background difference, however, doesn't end here. It interjects itself and further complicates the human relations picture in yet another way: favoritism of top management for one group or another.

The policy followed in individual companies varies, of course: some chemical firms favor their technical personnel; some lean towards the men on the production front. And in short order the men down the line usually know which group is favored, or they think they know, and this produces the same ill effects. The resulting hostility then undermines their relations with each other to the detriment of the company.

Most executives, of course, are taken aback when you ask which group their organization favors. But get them started on the question and you will soon see whether or not they favor the technical or the lay side. And usually, it is not difficult to guess an executive's background once you have determined which side he favors. If he came up the ladder from a technical post himself, he has less regard for the layman.

One plant manager, for example, when asked about favoritism, began with the standard assertion, "You must not favor one group or the other. Both are necessary; you use each for a different purpose," etc., etc. But then, asked to describe some of the recent

WHAT'S NEW IN TEXAS?



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C W Report

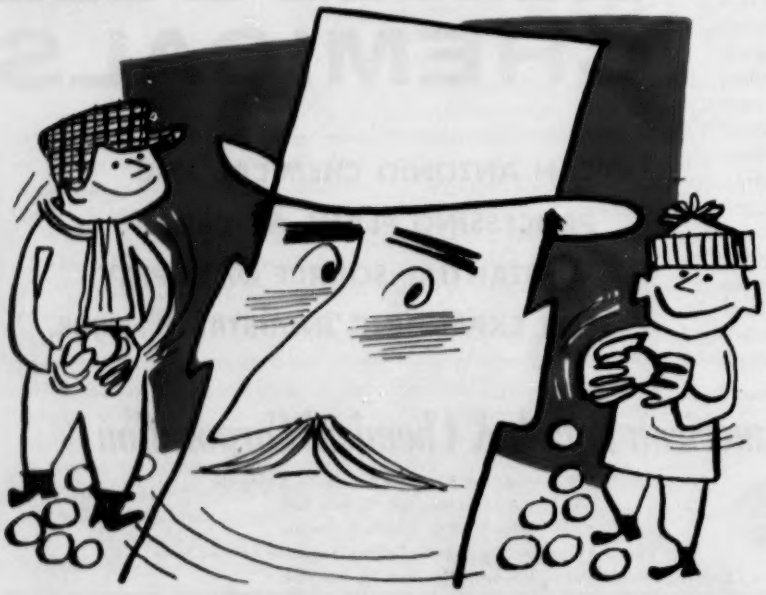
achievements in his organization, he proudly began to recite the record of his technical supervisors. He singled out one who had seen a challenge in the fact that certain pumps required repacking every three months. This had been accepted as normal routine, but the supervisor began an investigation on his own, finally discovered a new type of pump that required repacking only once a year. Concluded the plant manager: "I doubt that nontechnically trained people would have the curiosity or ability to make such improvements."

On the other hand, during the course of the survey, we ran into executives who rose from nontechnical backgrounds. No matter how much respect they had for the professional training of their colleagues, they generally considered them deficient in various vital executive skills. Here are two such expressions that we found are fairly typical of the lay executive: "In many instances," declared one high-level management man, "research people are not qualified to become so-called supervisors and managers because they lack the adaptability required for liaison work." And, from a plant manager in the plastics department of an international firm's large chemical division: "Our technical supervisors have excellent technical knowledge, but they do not know how to judge or improve the performance of their subordinates, or give direction to their men."

The Consequence: Actually, of course, there is no reason why a research man should be less adaptable than a production man, or vice versa. Nor is there any justification for believing that knowledge in one area forever blocks an individual from becoming a skilled supervisor. To whatever extent the assertions about technical people are true, they reveal merely that management has made no effort in the past to give its specialists training in the essential executive skills.

In any event, the existence of such presumptions by men in top management spots, however rebuttable, produces serious consequences in human relations. As company policy filters down to rank-and-file employees, it colors their views on promotion opportunities in the organization. In some cases it suggests discrimination in pay structure, in job security, in recognition. In all cases, it hurts the company's human relations.

Theoretically, of course, higher management should play no favorites between technical and nontechnical personnel. But walking the middle course is always a difficult feat.



Walking the middle course between employee groups is difficult.

Communication Clears Air

Against this backdrop of hostility and misalliance, good communication stands out as perhaps the one most promising route to sound human relations. As a means of transmitting information, it plays a major part in organization, operation, cooperation, employee-employee relations, employee-management relations, and management-management relations.

In its broader sense, communication serves as a means of hiring, placing, training, promoting and dismissing people, for molding teamwork and motivation. Most directly it can clear away misinformation and misunderstanding along with the resultant ill feelings. Indirectly, and perhaps more important, it can promote productivity and efficiency.

Sense of Purpose: Among the present roles of communication, the building of employee motivation is one of the most important. In the past, religious concepts such as the Puritan "stewardship of talents" provided the American worker with purpose. Simply, man was given talents by God, and in using his skills to earn his daily bread, he was serving his Maker.

In the 19th century, man's identification of his work with his purpose in the universe faded. The industrial revolution brought division of labor almost to a point where the employee was unaware of the end product toward which he was ultimately working. In the first part of the 20th century, as mechanization speeded up and mass production moved in, job significance further waned.

But while this change was taking place in most industries, the chemical field continued to enjoy the aura of dignity and esteem peculiar to professionalism. And where the popular awe of science gives status to an industry, employees are likely to be found more responsive to their jobs. But now, with the imminent arrival of a second industrial revolution, chemical companies are finding that they can no longer withdraw behind this mantle of lay reverence, that they must face squarely this loss and the concomitant rise in employee frustration.

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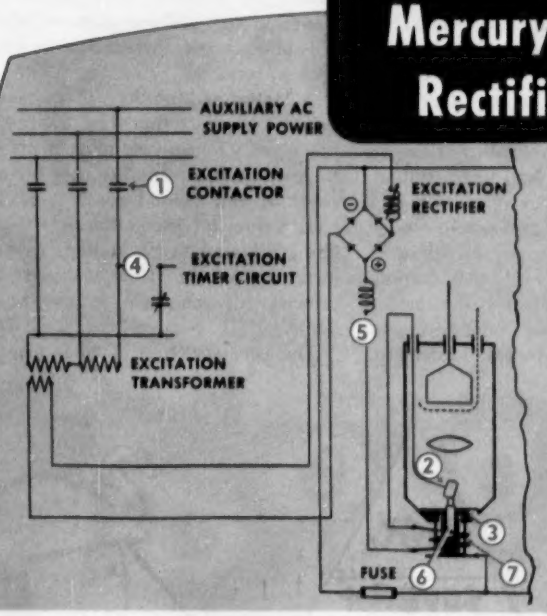

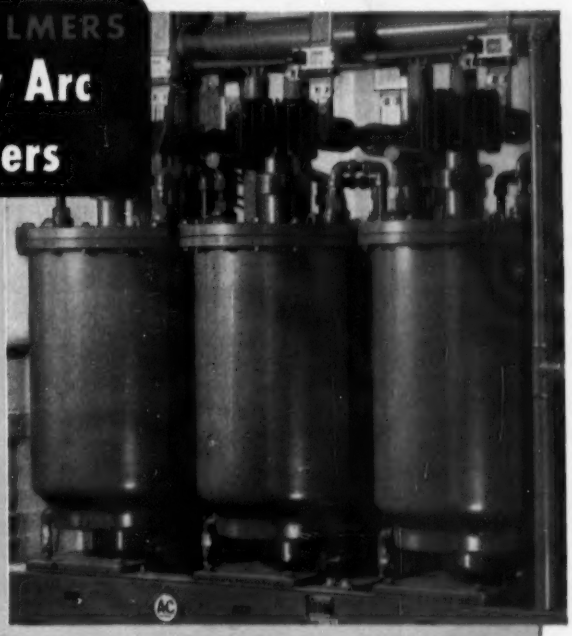

Supply of DC Provides Key to Continuous Excitation

Direct current supplied from excitation rectifiers is the key to continuous excitation. When the excitation system is energized by means of a contactor (1), positive dc potential appears on the excitation anode (2) of each tube, negative at the cathode (3). A timer (4), through contacts of the excitation failure relay (5), is energized at the same time.

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If excitation failure should occur while the rectifier is carrying load, the plunger is released, floating upward in the mercury until it makes contact with the anode, then repeating the process above until the arc is re-established.

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answer to this tough problem of employee motivation. But psychological laboratories have uncovered sufficient data to show that the threshold of frustration is rapidly reached when a man cannot see the relationship between what he is doing and any intelligible goal, that the ensuing discontent and incompetence are both reduced if the employee knows why he is performing his task.

In all probability, the average chemical plant holds much greater mystery for its workers than the ordinary industrial establishment. But where the concepts are more abstract, the potential for education and training is all the greater; and the return for the company in increased efficiency is all the larger. Psychologists have demonstrated that the man who knows theory is more competent than the man who does not. Professor C. H. Judd, for example, has proved that the ability to hit a target underwater increased substantially if the marksman was instructed in the theory of light refraction.

Increasingly, industry is finding practical and psychological advantages in giving rank-and-file employees more advanced instruction in its own processes. The benefits to be derived prove persuasive. Among them: more willing performance, greater enthusiasm, reduction of accidents, and development of cost-saving suggestions.

But while employee enlightenment is undoubtedly a boon to human relations, it still doesn't answer all aspects of this complicated problem of motivation. Much, for example, has yet to be uncovered by the psychologist in determining which type of human being is best suited for the routine assignment and in developing tests that will identify him among job applicants.

In numberless cases, rank-and-file employees are entrusted with vital operations that allow for little latitude of judgment or thought. Their assignments are routine: they police a set of controls; at a given moment, they turn a valve or feed a new supply of raw materials into a vat. The human relations expert cannot claim that he has solved this problem of the repetitive job. In a thousand chemical companies throughout the country today, this type of work is being endlessly repeated, giving rise to employee discontent. Enlightenment helps, but it isn't the complete answer.

Need for Reinterpretation: Another vital application for communication closely akin to its use in building motivation is in the revision of certain currently existing motivations such as the desire for success.

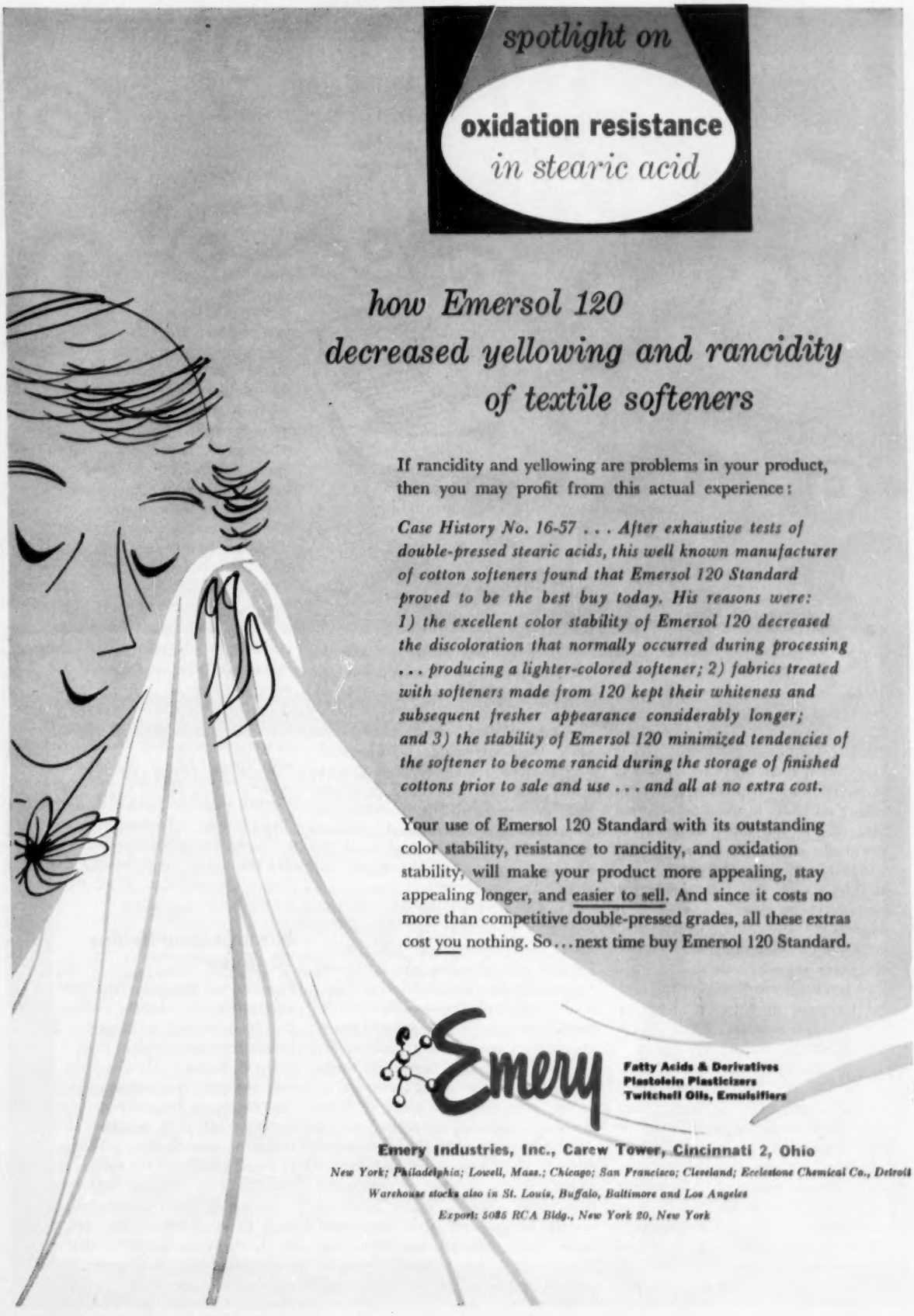
At present, success is interpreted as meaning only constant movement up — elevation to successively higher levels of management. And the test of status often used is the degree of authority over other people. For the technician, especially, this view of success is likely to lead to frustration, for when he is moved to a higher rung on the ladder and put in charge of more people, he may be left with a sense of insecurity or dissatisfaction. And for his subordinates, this means the misery of working under bad management or incompetent leadership. Promotion helps neither the company nor the employee when it makes a poor administrator out of a good researcher.

For the average employee, too, this view of success is fraught with serious consequences. With no prospect of promotion, with no anticipation of pay raises beyond certain fixed limits, how is he to derive the kind of satisfaction from his job that makes it possible for him to identify himself with his company's future? This poser, throughout industry, will not be wholly solved until communication can change industry's general outlook on success. Meantime, however, those aspects of the promotion problem that are amenable to communication should be dealt with in turn.

A Matter of Mobility: If the measure of job satisfaction were solely the opportunity for upward movement, we then would be doomed to poor human relations and eternal conflict on the work scene, for promotion opportunities are bound to be limited. As one executive put it: "How many crown princes can you have in one kingdom?"

The very structure of an industrial

The two groups are separated by a vast 'social distance.'



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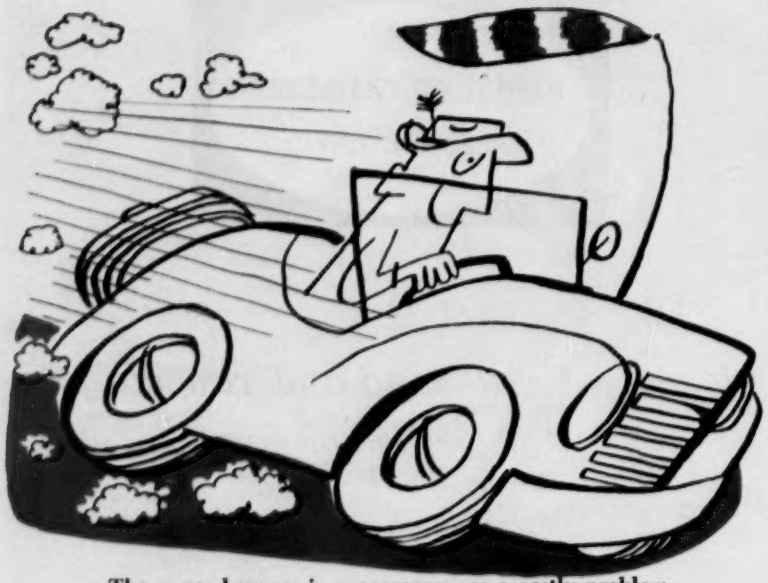

The eager beavers in a company are a costly problem.

C W Report

organization holds mobility in check. As one plant manager discovered after making an effort to diagram relationships among the different levels of personnel, his organization was divided into two pyramidal groups separated by a vast "social distance." The segment above was composed of a manager at the peak and, beneath him, the superintendent and staff equals. The lower segment was divided into three levels: at the top were the general foremen; in between were the foremen; and at the base were the rank-and-file employees.

The vastness of the technological gap between the two pyramidal segments is evidenced by the infrequency with which personnel move from the lower segment to the upper one. In the case of the chemical industry, the lack of formal education is a greater impediment to progress than in most other fields.

Also, lack of mobility exists within each segment for an obvious reason: as a person moves farther up, the amount of room gets smaller—such is the nature of a pyramid. Moreover, competition for promotion is keener toward the top.

This restricted mobility tends to affect company human relations in two ways. First, a large number of employees reach the full limit of their technical potential after a few years. Once their knowledge is exhausted, of course, the door to promotion is barred; and the "dead-end" employee then gives vent to his frustration in grievances and deteriorated performance. This happens to high-level executives, supervisors and employees alike.

Then, there are those who are barred from promotion, not because of their own inadequacy but simply because opportunities do not open fast enough to take care of all of them. And in terms of turnover, these "kids-on-the-make who are going places" constitute a more costly problem for companies than the "dead-end" workers who are at the end of their road.

Yet, even situations such as these are not completely hopeless, are to some degree amenable to communication. In the course of our survey we came across a number of companies that were able to make headway merely by presenting to employees some facts that all too often are assumed to be obvious. Sample communications: "the higher you go in an organization, the fewer are the openings," "you have to compete for promotion," "the qualifications for advancement are the quality of performance in your present job, evidence of a growing capacity to handle more difficult and more responsible work."

More than Illusion: But it will never be enough for a company merely to make these statements. It must go further and make an effort to help those who respond to the invitation to compete by at least removing certain obstacles from their path.

Foremost among these obstacles, perhaps, is the vagueness surrounding the problem of promotion. First of all, the company must give the would-be competitor specific information on which goals he can aim at. Then, job requirements for these goals must be spelled out clearly, particularly in the chemical industry where technical education counts for so much.

Some companies already have clearly formulated job descriptions that can be used to show the employee in which direction he must grow if he is to qualify for advancement. Job families—i.e., listings of jobs related to each other—can be used for the same purpose.

All employees will be happier knowing there are opportunities for advancement awaiting those who can earn them. In all organizations, of course, there are always some employees who are unable to move up. And of those who can, many do not really want to make the effort. "I could if I wanted to" is a thought that exhausts the ambition of all too many people.

Management Begins At Home

In numerous instances, we found management prone to lay the responsibility for poor human relations on forces beyond its realm and control.

Good human relations, like good management, is a never-ending task that begins at home. Not only must management look to itself for the blame of poor human relations, but, to build solidly for the future, it must also direct its remedial efforts within.

Industrial Merry-Go-Round: In regard to employment, for one thing, the truth of the matter is that many companies think it is more desirable to hire from the outside. These firms

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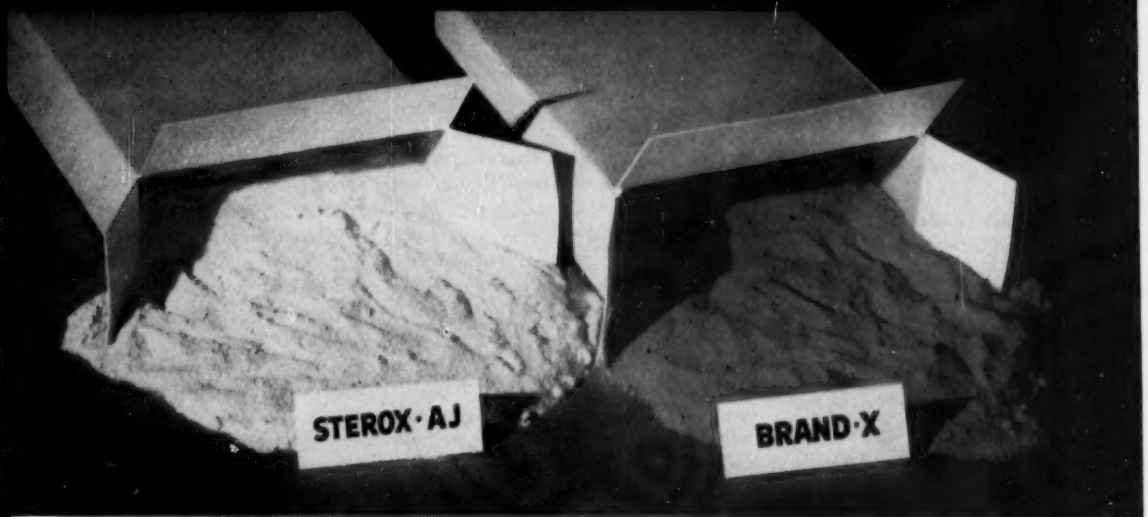

Two cleansers, one with Sterox* AJ and the other with "Brand X." Both are several months old. Note cleanser with "X" is discolored to point of being unsalable. The Sterox AJ cleanser retains its original light color.

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SERVING INDUSTRY...WHICH SERVES MANKIND

C W Report

imagine that by doing so they will avoid recrimination from those within who would not have received the promotions. Instead, they actually increase turnover in their own ranks. Moreover, these firms end up with less competent personnel because they are hiring unknowns who will need a longer breaking-in period.

Or, many chemical companies are resigned to going through this experience indefinitely: at the end of every school year, they pick up youngsters fresh out of the high schools or universities, spend a great deal of time and money training them. Then, at the end of six months, the youngsters, having acquired "experience," are off to new jobs that offer higher status and better salaries in other companies.

By way of illustration, one chief of quality control had this to say when questioned about the problem of turnover in his company: "These young people start out with inadequate technical backgrounds for the responsibilities assigned to them. Furthermore, we have to play down the importance of the job, or they'll want more money. As a result, they are irresponsible because they don't realize the importance of their work; they are dissatisfied because of the low pay. In one group of 12 technicians, 10 have been on the job a year or less. Starting at $1.10/hour, these employees will reach $1.70 after about five years service, so we lose them to other companies."

In this instance, some effort had been made to halt the turnover. The supervisor himself organized an after-hours "bull session" to build better understanding of responsibility. He was surprised at the group's interest in their jobs and their future. Unfortunately, the only advice for the future he could give them was a warning that they would be fired if they didn't "get on the ball."

This problem is found in all types of business. Too, there's an executive as well as a rank-and-file turnover pattern. A recent study of a cross-section of prominent businessmen showed that most of them had received their training in firms other than those they now direct. Of these, the overwhelming majority had worked for four to seven other companies before arriving at their present posts.

Damming the Tide: There is something ridiculous about this flow of people from company to company. Management claims it is inevitable since there are no promotion opportunities at home, but this intercompany exchange belies that contention. People without washtubs could not take in each other's washing.

The new trend toward management development programs may change the picture as far as the upper echelons go, and similar programs on a lower level may slow down the rank-and-file merry-go-round. If for no other reason except good business practice, it is a company's responsibility to find the outstanding individuals within its own walls and develop their skills.

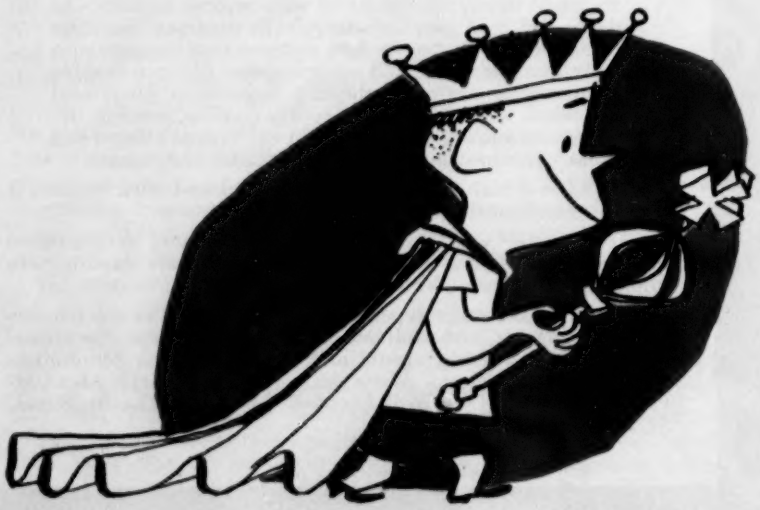
More and more chemical companies are becoming aware of this. Technical men who would qualify for advancement if they had administrative and supervisory skills are being trained in company seminars and conferences. Similarly, supervisors who are bumping their heads against a ceiling of limited technical knowledge are acquiring more headroom by enrolling in special courses at nearby universities and colleges. The usual practice is for companies to pay the full tuition or share it with the individual upon successful completion of the courses.

Crucially Timed Diversion: Some companies are fed up with training programs, consider them a waste of time and money. Said the president of one firm: "We're like a baseball club running a farm for its opponents, we stand all the expense of training these people, then they leave us; they won't sit around waiting for a spot to open. We have the heartaches, and our competitors reap the benefits."

To be sure, there is no easy solution of this problem, but one of the most fruitful approaches found so far takes this tack: First, the company analyzes its turnover, finds both when and where it is losing its personnel. Often, the drain is confined to one department or type of activity. Or, in many instances, a "critical" date is discovered in the training program. Apparently, at a certain point, the trainees feel they are ready to spread their wings.

In the case of the "critical dates," the solution may be a revision in the training timetable; or, it may be necessary to provide a fresh incentive as the crucial time nears. One vice-president in charge of personnel, for example, felt his company was losing an expensive investment in technicians and low-level executives, and as a result, is now testing a program based on these three rules:

- Arrange for periodic evaluation of rising status. At set intervals during



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Dispersant NI-O	Additives	Phthalic Anhydride	Hydroformer Catalyst
Dispersant NI-W	Sodium Sulfonates	Maleic Anhydride	Fuel Oil Additives

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C W Report

the training period, formal acknowledgment of progress is made in the form of letters from division heads, certificates handed out at company dinners, and so on.

• Provide graduated compensation. The search for higher salaries is responsible for much of the turnover, but people, particularly the younger ones, are willing to forego immediate increases in salary if they feel the company offers a long-range future. Consequently, even token raises, keyed to the trainee's progress, will keep many of them content, show that the company is aware of their development.

• Enlarge responsibility. When unable to increase either the employee's salary or status, a company can indicate its growing confidence in the employee's ability by giving him more authority.

Two-Way Street: Training and recognition, though not in themselves complete answers, are definitely steps in the right direction, and must be used by management if it hopes to hold on to its employees and build strong human relations. But loyalty is a two-way street, and if a company expects to obtain allegiance from its employees, it must in turn show loyalty to them.

Recently, a number of firms tried to ignore this matter of loyalty completely. Moving all operations out of one region and into another, they made elaborate plans for salvaging worthwhile material inventory, but disregarded the human element. Newspapers carried vivid accounts of what followed. The resulting strikes, of course, were only temporary matters; but the bitter feelings engendered will haunt the companies for many years and in many ways. Where the companies resettle, future employees will know about and remember such incidents. And sales of companies in the consumer market will be threatened. Such industrial practices not only undermine human relations but also make for poor public relations.

Industrial transformations involving resettling are the extreme example, of course, but even here some thought given to the human problem could have avoided much of the trouble. Moreover, had the firms tried to salvage some of their personnel, they would have saved themselves the time and money of training new employees whose skills were inadequate, whose loyalty to the company had not been tried.

This matter of loyalty is at the least a very nebulous subject that doesn't lend itself to easy analysis, even in less extreme instances of transition. In a short time for example, a pharmaceutical company will change over from conventional cartons to squeeze bottles, from hand labor to highly mechanized operations in its packaging operations. This is a comparatively minor change, the impact of which on plant procedures can be anticipated.

But what about the more subtle and disturbing effects this move will have on the people involved? To begin with, how many of its old packaging personnel will it need in the new setup? How shall they be retrained in new skills? What about those no longer needed; where will they go? What communication should be made to those directly involved? How can the unsettling effects on neighboring departments be avoided?

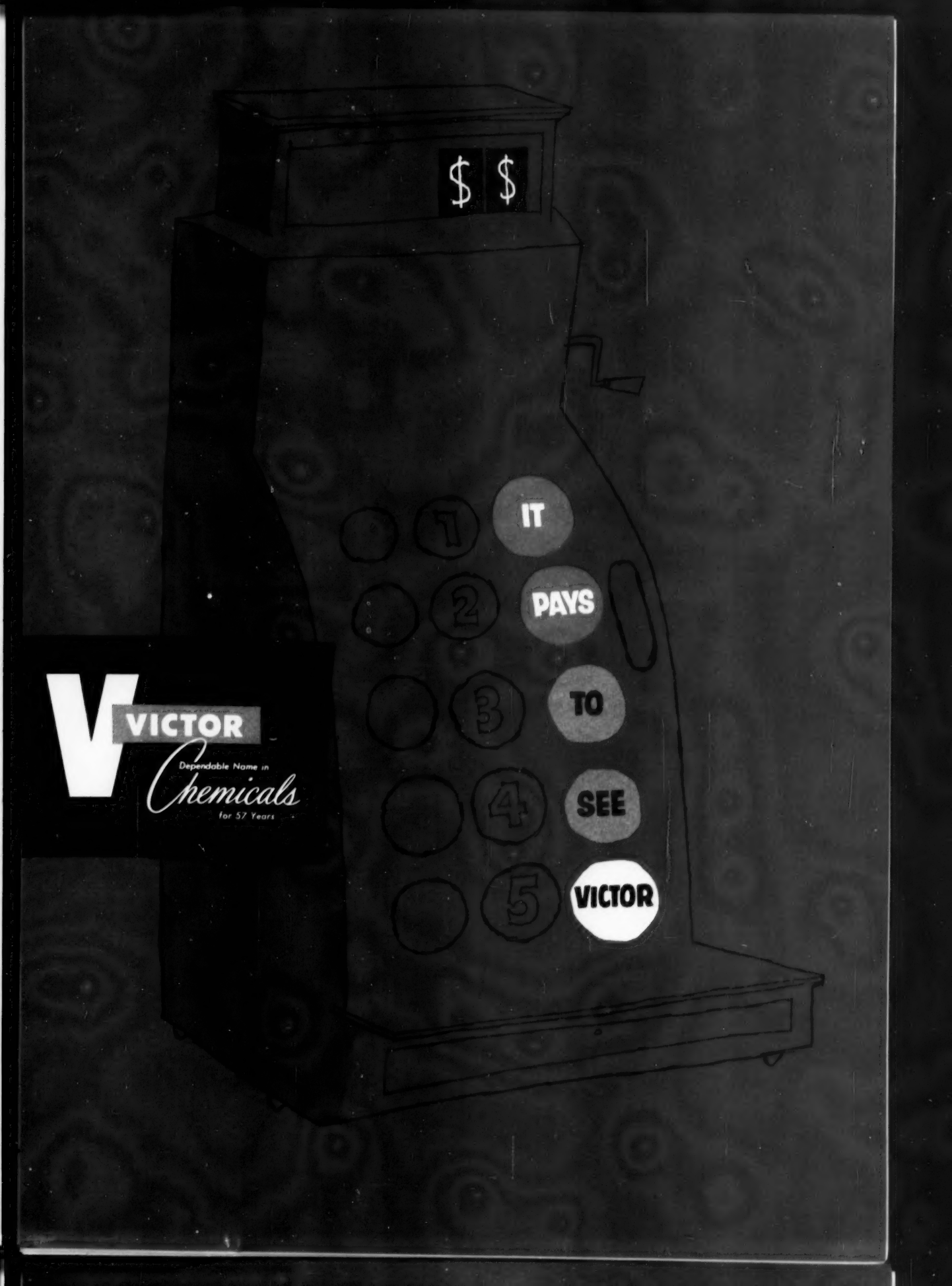
The questions a company undergoing change must ask itself about its employees are almost inexhaustible. Nevertheless, a company must carry through on these questions, make an effort to show its employees that it has some regard for their welfare.

Transition always exacts a price, and industry is now entering one of the greatest transition periods in history. If the human element is ignored at this time, the price will prove exorbitant.

Reprints Available

Copies of this report are available from Chemical Week, Reprint Dept., 330 W. 42nd St., New York 36, N. Y., at 75¢ each.

Prices for bulk quantities (over five copies) and for previous CW Reports are available upon request.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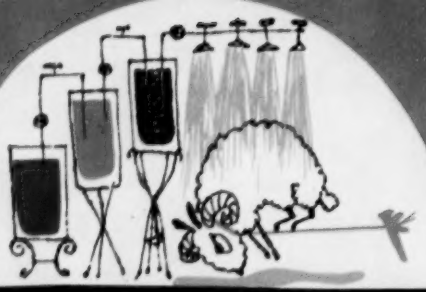
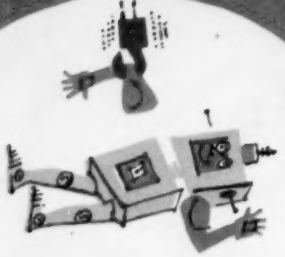


WILD AND WOOLY

Wool dyeing may sound like tame work . . . but it isn't. There are a host of variables that must be controlled . . . and that's why mill men have welcomed the use of Victor diammonium phosphate. In the dye bath, DAP provides *automatic control* from initial alkalinity . . . thorough penetration . . . to a gradual acidic action for correct fixation and exhaust. This reduces rejects, improves quality, and simplifies matching colors . . . *it pays* to see Victor.

AMMONIUM PHOSPHATES—Typical Uses: Ammoniated dentrifrices, catalyst for resins, chrome dyeing of wool, one-bath dyeing of Dacron-wool blends, flameproofing, plant nutrient solutions. Manufacture of yeast, vinegar, bread improvers, and alcohol. Acid cleaner for metal.



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Food manufacturers add "muscles of iron" to their sales story when they add body-building Victor sodium iron pyrophosphate. The iron in Victor S.I.P.P. is *anionic* . . . which means it's incapable of behaving like free iron until dissolved by *natural digestive acids.* Victor S.I.P.P. can be used safely to "iron enrich" flour, baby foods, syrup, cereals and pet foods . . . *it pays* to see Victor.

SODIUM IRON PYROPHOSPHATE—Typical Uses: Iron enrichment of flour, cereals, and pet foods. Amplifier for dairy drinks and food beverages.

RUNNING DOWN THE SCALE

There are all kinds of scales . . . musical scales, fish scales, weighing scales and, to heating engineers, the most expensive scale of all . . . boiler scale. When monosodium phosphate is added to boiler water, it contributes phosphate ions which are needed to prevent the build-up of mineral deposits. Thus, it materially increases the efficiency of the system and prevents costly maintenance . . . *it pays* to see Victor.

MONOSODIUM PHOSPHATES—Typical Uses: Boiler water treatment, contact tinning of brass, and acid type metal cleaner. Source of phosphorus in stock feed.

THIS RINGS TRUE

Makers of piston rings need special steels to maintain precise tolerances under conditions of extreme heat and friction. In manufacturing these special steels, foundries add Victor ferrophosphorus. The ferrophosphorus makes the molten metal more fluid . . . enables it to fill every crevice in thin-wall and small castings. If you want rejects virtually eliminated, you'll find . . . *it pays* to see Victor.

FERROPHOSPHORUS—Typical Uses: For phosphorus additions to iron and steel. Manufacture of special steels to prevent sheets from sticking together when rolled and annealed in bundles. Paint pigment, and weighting agent for oil drilling muds.

interest please turn to the next page

SURE WAY TO GET A RAISE

Monocalcium phosphate is one of the world's most popular "raising" or leavening agents. Used in combination in the increasingly-popular mixes for cakes, muffins, waffles and pancakes, the leavening action of Victor monocalcium phosphates and Victor sodium acid pyrophosphates are tailored to the particular requirements of each mix. When it comes to leavening . . . *it pays* to see Victor.

MONOCALCIUM PHOSPHATE, ANHYDROUS-V-90®—Typical Uses: Manufacture of self-rising flour, self-rising corn meal, pancake flour, prepared mixes, and household baking powder. As an ingredient of baking preparations.

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PHOSPHORUS PENTASULFIDE—Typical Uses: Intermediate in the production of thiophosphates for oil additives, flotation agents, insecticides, and other chemicals.

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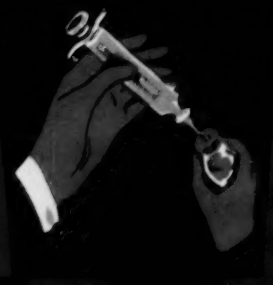

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155 North Wacker Drive, Chicago 6, Illinois

GE'S GIBSON: For him, the key's cost consciousness, not smokestack chasing.

Expense Control for Profit

One way to add new business or even to maintain volume is simply to prime the sales pump with more promotion spending. This is, of course, the easy route to greater volume; but, unfortunately, it may also be the short way to lower profits.

And under present conditions, when heavier selling costs may appear to be justified, the task of keeping costs in line becomes especially acute.

Recognizing the immediacy of the problem, *CW* this week discussed sales expense control with a man who has given the matter an unusual amount of study. As vice-president and general manager of General Electric's Chemical and Metallurgical Division, Robert Gibson has evolved a definite philosophy and approach to cost control techniques.

Here are some of Gibson's answers:

CW: Mr. Gibson, viewed from a top management stand, how do sales expense controls fit into the business picture today?

Gibson: Sales expense controls must be considered as part of the broader problem of how well management is running its business. They cannot be regarded as a universally rigid solution, to be applied in a vacuum. It's up to management to foster conditions that assist in increasing sales and thereby lower costs.

CW: In your opinion, what are these conditions that are to be encouraged?

Gibson: At least two: first, a positive identification with the business' growth; second, a definite willingness to utilize expenses toward increasing sales. Lowering costs *per se* should not be an end in itself. Controls should tell the salesman and management (1) how he and the business are faring, and (2) how funds might be better employed.

CW: What is your setup at GE to administer such controls?

Gibson: Our chemical and metallurgical division is made up of five separate operating departments. Each deals with three different types of distribution: (1) direct to users, (2) through distributors and dealers, (3) through agents. Each department creates solutions of its own problems.

CW: How does your sales team handle this variety?

Gibson: Previously, one field force served the entire division. Now, however, it's served by eight distinct sales teams.

CW: Doesn't this all require a tremendous task of coordination?

Gibson: Not in our case. Each field salesman works for only one department, reports directly to his sales manager at department headquarters. The need for field coordination isn't critical with us because of little product overlapping. Besides, such disadvantages are more than offset by the benefits of specialization and decentralization.

CW: Just what expense controls benefits result from this specialization?

Gibson: Our specialized sales forces allow for improved working of sales with other functions, faster and more timely communication, better direction of salesmen. In that way, profit responsibility is close to the salesman in the field; he is expected to keep in touch with the problems of the business, with management, technical service, product development and manufacturing.

Not only that. We believe small, specialized sales groups give individual salesmen more attention and permit more effective sales meetings.

CW: It would seem, Mr. Gibson, you make a point of directing your men quite closely.

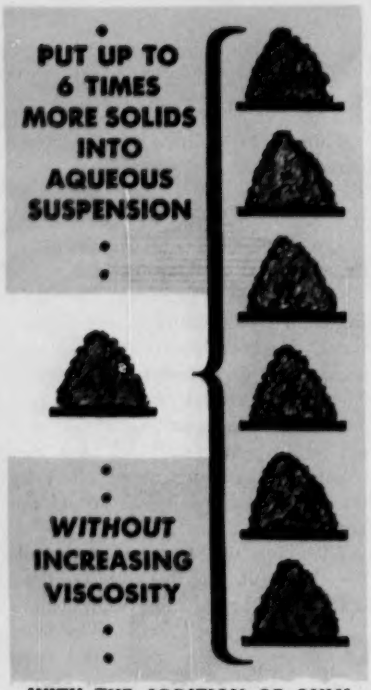
Gibson: You're right. The 'chasing smokestacks' approach has been minimized. We prefer to direct from headquarters to specific customers and markets. This gives improved direction to our total sales effort.

CW: But doesn't this central control require detailed field reports?

Gibson: Oh yes. Each man makes a call report on each sales call. This tends to make his calls more purposeful, and it effectively documents his progress. It also confirms our belief that he should spend more time with individual customers.

CW: How do you use these call reports in expense control?

Gibson: In several ways. First, we try to make the man conscious of performance and sales-call costs through a monthly report, "Sales Analysis by Salesmen." This report, pegged for his own benefit, shows the percentage of realization of his sales budget, average calls a day, call budget per-



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centage realization, cost per call and sales dollars realized per call.

Other reports indicate specific account progress, comparisons with previous periods, how sales compare with business lost to competitors, and relationship of progress to potential.

Finally, there's the "Class A Customer Report." It gives the monthly status of Class A accounts compared with a year ago, records dollars budgeted and lost the current year, sales calls budgeted and actually made.

CW: What particular benefit do you realize from this Class A report?

Gibson: It shows up cases of overcalling, due to such reasons as inequitable territory assignments.

CW: Aside from your intensive use of reports, what other sale costs-paring methods do you employ?

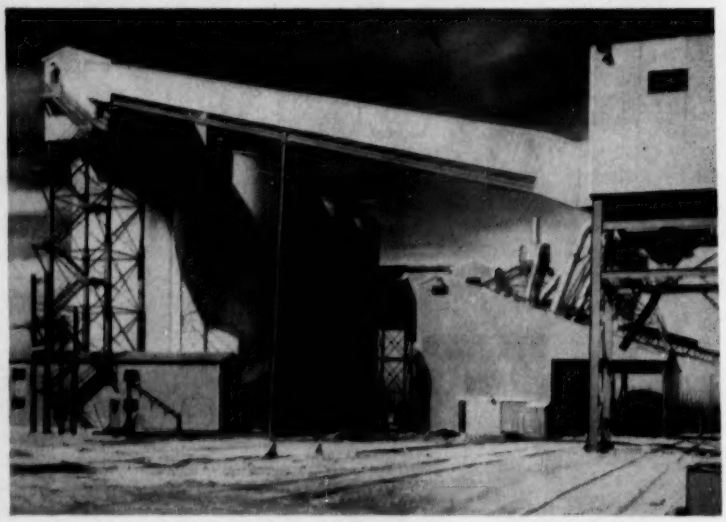
Gibson: We are increasingly using "group selling techniques." This entails maximum targeting at customers or prospects of a variety of devices and efforts, including traveling exhibits, technical presentations, mobile demonstrations and training schools in product applications.

CW: Just how do all these tie in with expense control?

Gibson: They aim at lowering costs by reaching more buyers at lower cost per person. In fact, this new approach has been forced upon us by rising salary levels and transportation costs.

CW: Mr. Gibson, to summarize, what would you consider the most important considerations on which to base a successful sales expense control program?

Gibson: Fundamentally, I believe there are two building blocks: first, the sales function must be given a reasonable chance to achieve good cost ratios. This requires careful product planning that studies customer needs. It means, too, that conditions



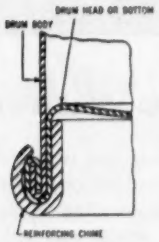
Concrete Giants Store Phosphate

EIGHT SILOS, each 30 ft. in diameter by 70 ft. high, have just been put into operation by the Board of Commissioners of the Lake Charles, La., Harbor and Terminal District. To be used for storing phosphate rock, these concrete monoliths are part of the Lake Charles self-sustaining municipal installation aimed to increase the tonnage of materials handled through the port, thereby make lower-cost fertilizers to Southwestern farmers possible.

Claimed to be the only installation of its kind, the silos, together with rock crushing and conveyor belt facilities, will serve as distribution center for rock barged from Florida mines. The system will also be used for storing and processing barytic ore for oil well drilling.

Here are important features that mean big savings with USS Stainless Steel Drums and Pails

USS Stainless Steel Drums are available with durable rubber rolling hoops (as illustrated) that give extra protection to both the drum and its contents from bumps and shocks, prolong the life of the drum, make handling much easier and quieter, and keep the drum from marking and marring floors.



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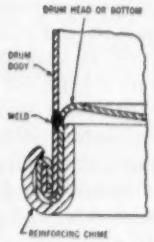
Our special patented construction seals off the inner crevice or opening that usually results from the conventional double seam construction. This prevents the contents of the drum from entering the double seam and being trapped within the crevice, making it easier to do a thorough cleaning job.



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United States Steel Products fabricates stainless, galvanized, tinned, painted and decorated drums and pails . . . furnished in a wide range of capacities and with a variety of fittings and openings to meet every industrial need. If you would like any additional information on USS Steel Drums or Pails, just write to us at New York.

1. USS Stainless Drums and Pails give you many times the length of life of drums and pails made of conventional carbon steel because of greater tensile strength, extra durability.
2. USS Stainless Steel Drums and Pails are returnable, can make many trips, reducing considerably the unit cost of your shipping containers.
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4. USS Stainless Steel Drums and Pails stay clean and new looking inside and out. This is important in promoting customer confidence. And products that require sanitary containers are dependably safe in USS Stainless Steel Drums and Pails.

These containers are available in both tight and removable head construction.

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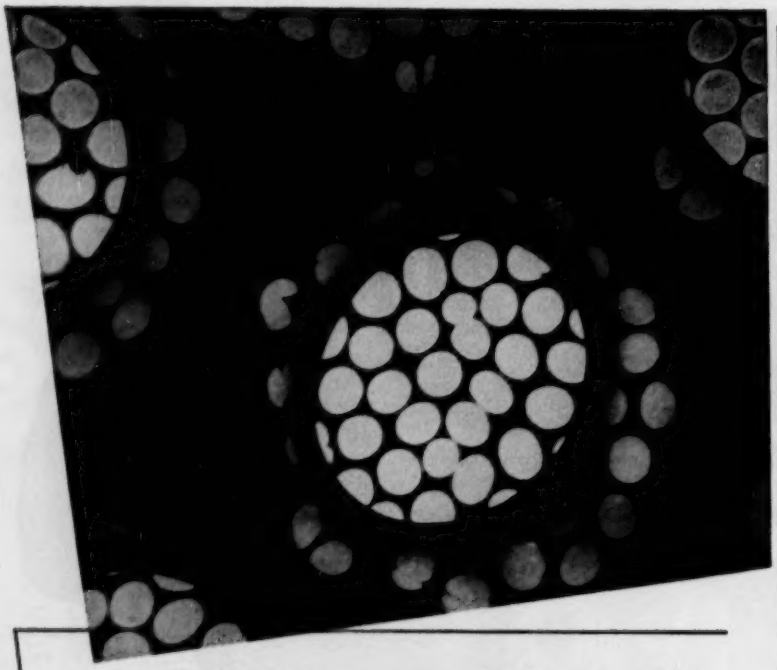

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This electron micrograph of one of the more than 10,000 kinds of diatoms shows clearly the delicate, yet rigid, "skeleton" whose lace-like grid helps make diatomite such a superior filteraid. Imagine, for a moment, millions of these diatom frustules—needle-, disc- or boat-shaped—piling up strawpile fashion in the filter pre-coat or filtercake ... then visualize bacteria or other sub-micron sized solids (enlarged to the same scale) coming against this barrier. Now, in your mind's eye, you can see clearly how the diatomite "grillwork" catches and holds all solids, while the fluid filtered flows rapidly on through the billions of tiny channels which make up 90% of the filtercake's bulk.

Many processes and products in the chemical, industrial, food and pharmaceutical fields would be practically impossible without this "sharp" filtration provided by high-quality diatomaceous filteraids such as Dicalite. These Dicalite filteraids, processed under rigid controls from the highest quality diatomite, afford a complete range of uniform, sterile, chemically-inert products for the filtration of almost any liquid. They have provided the answers to many processing problems – they could well be the answer to yours. We will be glad to furnish full information, samples adapted to your requirements, or technical engineering aid if required.

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of sale, such as small-order handling, must be improved.

Sales can be further helped by speeding up the assembling of control information. Also, encouragement in work simplification methods might be profitably applied.

CW: And your other building block is what?

Gibson: Willingness on the part of

Case of the Withered

WHAT'S IN a symbol? Is a withered hand too "offensive" and the drip from an overturned carboy—eating away metal—too vague to denote corrosive chemicals? That's the main question the International Labor Organization's Subcommittee on Classification and Labeling tangled with at its recent meeting in Switzerland. Result of a "record" vote: the withered hand (*see cut*), by 23 to 8 (with 10 abstentions).

But the vote hasn't settled anything. The governing body of the ILO must make the decision after the question has been submitted to the United Nations' Committee of Experts on the Transport of Dangerous Goods

the salesman to lower cost ratios. We stimulate such willingness by bringing individual salesmen to realize that their opportunities hinge on the success of the business, that they are part of the management. They should be led to realize that their ability to manage themselves and their own time is one of the most important qualifications for management.

Hand: No Solution

to find an alternative symbol.

At the parley, the U. N. carboy symbol had the backing of employers, who felt the "hand" marking too macabre and not applicable to all cases. Worker representatives, however, objected: the U. N. symbol was too innocuous and the carboy was a shipping vessel commonly containing harmless substances – wine and distilled water.

Agreement was reached, however, on the number of hazard classifications* and the principles to be used in establishing warning symbolism.

* Symbolized across top of cut above: explosion, poisoning, ignition, radiation—and corrosion.

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*dividends from dust control

Ever hear of anyone who didn't like dividends . . . especially when an attractive return is consistently realized from a moderate investment?

It may be that dust control presents such an opportunity right in your plant, either through the recovery of valuable dusts or the control of costly, nuisance dusts. Important savings can accrue from reusable materials or a cleaner, safer, healthier plant in which men and machines produce more.

● Dracco Dust Control systems assure maximum dividends because they are exactly engineered to specific requirements. Dracco's 40 years' experience in this field continually converts dust problems to profits.

Take the case of Canadian Refractories, Ltd., Marelan, Quebec, where Dracco Dust Control assures a dust-free plant with no abrasive wear of machinery. Yearly savings in recovered materials and heating costs are $40,000—a dividend almost as large as the investment.

An experienced Dracco engineer will be glad to show you how the control of plant dust can make your operation more profitable. For a highly informative brochure, write:

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dracco converts problems to profits

TARGETS OF CRITICISM: Corruption in the corner, anonymous operations.

Designed to Influence

Last week, the makers of this nation's steel shipping containers fired the opening salvo in a drive for more drum business. Doubtless quickened to action by the past year's "no progress" showing, the 35 member companies of the Steel Shipping Container Institute (which represents over 95% of production) are embarking on an 8-point program designed to "influence and build up the demand for new steel drums."

Some of the institute's campaign objectives, as listed by President Livingston Keplinger:

- To acquaint buyers and users of drums with the institute's new Red-Seal trademark (*see cut*). Purpose of the seal, a peelable sticker: to identify the container as a new product. Original users will be encouraged to destroy seal.
- To emphasize the advantages of sales appeal and customer acceptance of brand-new decorated or painted drums.
- To bring to the attention of buyers and users (1) the meaning of regulations governing steel shipping containers, and (2) their opinion that additional regulations should require identification by reconditioners of drums they have processed.

Cause for Concern? The drum makers may have reason for concern over lack of progress. Following a 12-fold boom in steel drums between World Wars I and II, shipments over the past several years indicate no further increases in new container demand.

The figures (annual shipments) of new heavy- and light-gauge drums, 13 gal. and larger:

	Millions of drums	
	Heavier than 20 gauge	Lighter than 20 gauge
1947	27.1	6.0
1948	27.1	7.3
1949	23.1	6.1
1950	26.2	7.8
1951	29.8	8.3
1952	24.0	7.6
1953	23.6	7.7
1954	22.0	7.7

Expressed in terms of annual industry capacity, the container makers' plight becomes quite evident:

	Millions of drums	
	Heavy gauge	Light gauge
Current mfg. capacity	52.5	15.0
1954 shipments	22.0	7.7
Percent of capacity	41.9%	51.3%

STAMP OF APPROVAL: Customers will be urged to look for and destroy.

Target: In its drive for more business, the institute will incidentally, but inevitably, take aim at its keenest competition: the 450-odd reconditioners of steel containers. No mean rivals, these commercial conditioners with small plants in or near most major

In the Tropics, Packaging's a Poser

TROPICAL CLIMATES pose special problems for pharmaceutical packagers—primitive transportation breaks vials; high humidity and temperatures quickly corrode needles, syringes, and stoppers.

Above, Sister Marie Suzanne (*right*) of the Marist Order of Missionaries discusses problem solutions with officials* of American Cyanamid's Lederle division.

The Marist missionary began her tropical experience in 1909 at a leper hospital on the Fiji Islands, has worked up an experimental leper vaccine, now does research at an Italian institute.

* Clockwise: A. C. Dornbush, head of microbiological analytical laboratory; I. S. Danielson, manager, biological production; G. N. Schneller, director of technical service-pharmaceutical for Cyanamid's Fine Chemical Division; Sister Mary Virginia of the Marist Order, and Sister Marie Suzanne.

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Solubility in Glacial Acetic Acid	Complete

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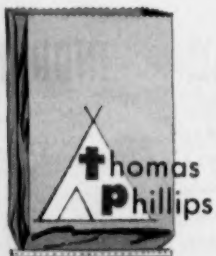


COMPANY
AKRON, OHIO

DISTRIBUTION . . .

cities now sell an estimated 60 million used containers per year to the paint, petroleum, chemical and fertilizer industries.

Two alleged weak spots in the reconditioning operations that the institute intends to hit hard in its campaign:

- When (according to Keplinger) the several methods of removing rust, paint, dirt and contamination are not entirely successful, contamination of product, leakage and even drum failure can be expected.
- Because regulations do not require reconditioners to identify themselves nor indicate the number of times a container has been reconditioned, there is no way of pinning down responsibility for damage claims due to drum failure.

The remedy? Obviously, to use only new containers, says Keplinger. "We believe that every product worthy of being shipped in steel containers is entitled to have sales appeal and protection found only in brand-new drums.

"Thousands of unattractive, unsuitable and dangerous drums that are reconditioned and reused each year should be scrapped," he added.

•

Ready for Reference: Company chemical index—second edition lists company chemicals, structural formulas, and specifications. Reilly Tar and Chemical Co., Indianapolis.

- Methyl cyclohexanol—leaflet furnishes physical properties, solvent action, surface activity, shipping data and suggested uses. Howards and Sons, Ltd., Montreal, Canada.

•

Color Film: U.S. Steel Corp. presents the conversion of waste smoke to industrial chemicals in a 23-minute color film, "Waiting Harvest." This picture outlines the evolution of coke producing, recovery of coal-tar chemicals from waste gases, and the manufacture of some products from coal-tar chemicals. United States Steel Corp., Pittsburgh.

•

New Introductions: Tricresyl phosphate is now available from Godfrey L. Cabot's Plastic Chemicals Division (Boston). Use: plasticizer for wire vinyl insulation.

- Shipping pails—Jones & Laughlin Steel Corp. is now producing lacquer-lined and decorated 3½- and 5-gal.

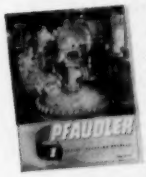
Corrosioneering News

Quick facts about the services and equipment Pfaudler offers to help you reduce corrosion and processing cost.

Published by The Pfaudler Co., Rochester, N.Y.

Four New Bulletins Offer Corrosion Helps

LAST WORD
on reaction kettles



Bulletin 920 "'E' Series Reactors" . . . 12 pp.

Innermost secrets of "E" and "X" Series glassed steel reactors are revealed in our new Bulletin 920.

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Bulletin 918 "'Chemstor' Tanks" . . . 2 pp.

"WHAT'S WHAT"
of auxiliary equipment

Bulletin 921 "Vacuum Receivers, etc." . . . 4 pp.

Everybody talks about the big items like reactors but it's just as important to help you solve corrosion problems in your auxiliary processing equipment.

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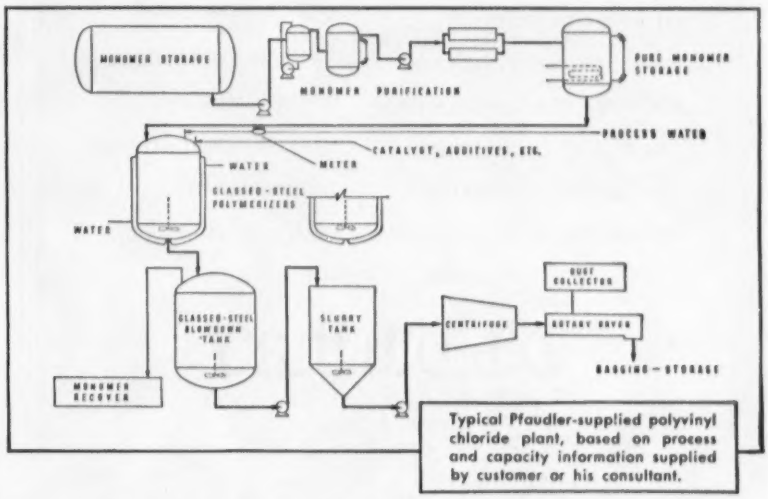
Bulletin 916 "Pfaudler Utilitanks" . . . 4 pp.



Typical Pfaudler-supplied polyvinyl chloride plant, based on process and capacity information supplied by customer or his consultant.

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You face hundreds of decisions, when you set up a new process. Many of these, like selection of materials and operating components, can tie up your own busy engineering staff for long, valuable hours.

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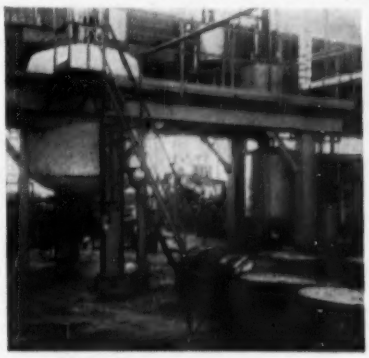

Pfaudler packaged assembly, using monel and glassed steel, for making plastic intermediates.

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PHOSPHORIC ACID
PHOSPHOROUS ACID
HYPOPHOSPHOROUS ACID
ALKYL ACID PHOSPHATES (Alkyl Phosphoric Acids)
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DISTRIBUTION. . . .

steel pails in its factory at Atlanta, Ga.

• Pittsburgh Coke & Chemical Co. (Pittsburgh) is now offering diisooctyl phthalate in commercial quantities.

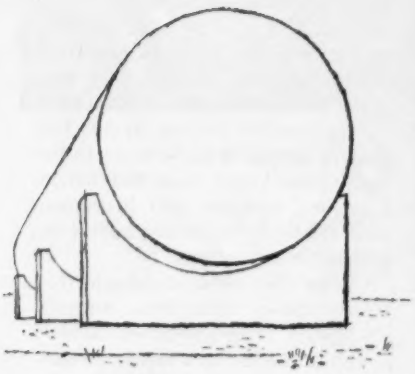
•

Distributor Appointment: Cole & DeGraf (San Francisco) has been named a distributor for sales, stock and service on "CUMAR" resins (manufacturer: Barrett Division, Allied Chemical & Dye Corp.).

• Sheffield Chemical Co. (Norwich, N.Y.) has been named distributor for the Beech-Nut Packing Co.'s polyvinyl acetate resins. Sheffield is a division of National Dairy Products Corp., will service all the U.S. excepting the Eastern section.

Acid By the Bag

PACKAGING for corrosive chemicals has a new wrinkle: polyethylene bags. Sulfuric acid for storage batteries is now being shipped to gas station outlets in cardboard boxes lined inside and out with polyethylene. This move marks a step away from heavier, costlier, nondisposable carboys currently in common use. The new container, it's claimed, eliminates empty storage, return shipment and handling, facilitates battery filling. Willard Storage Battery Co. and package maker Scholle Northlake Corp. hope that the new package will increase the number of retail battery outlets.



acetaldehyde—
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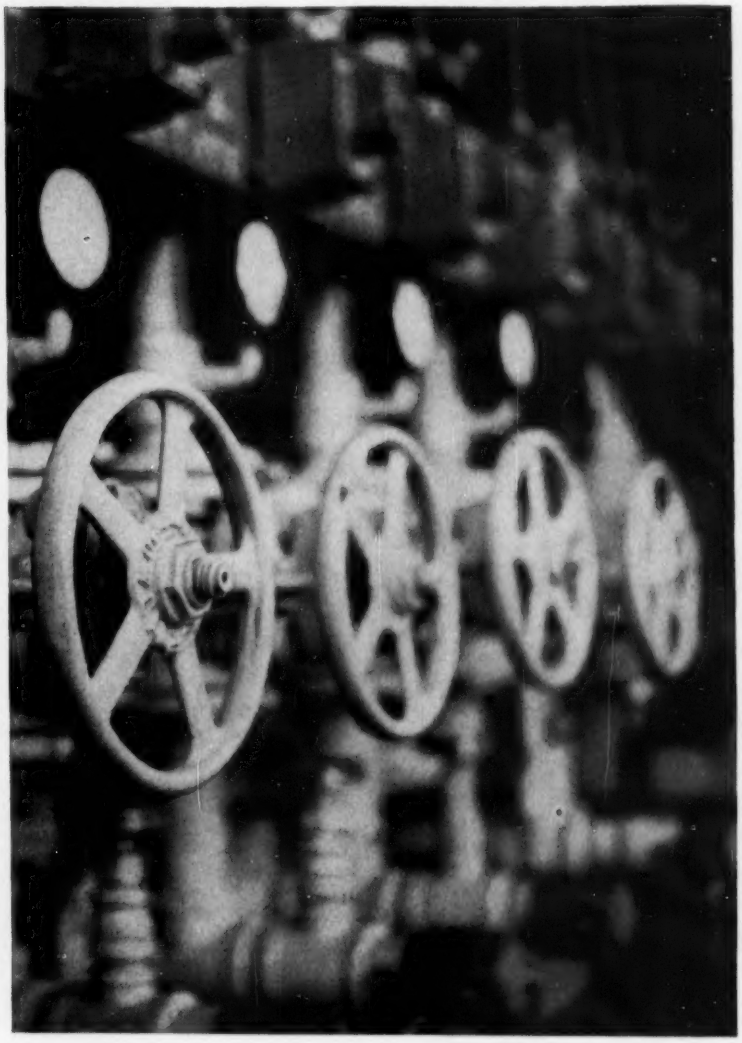
denaturant
chemical intermediate

crotonaldehyde—
denaturant
chemical intermediate
specialty solvent

n-butyraldehyde—
chemical intermediate
plastic intermediate
pharmaceutical intermediate

isobutyraldehyde—
pharmaceutical intermediate
resin raw material
chemical raw material



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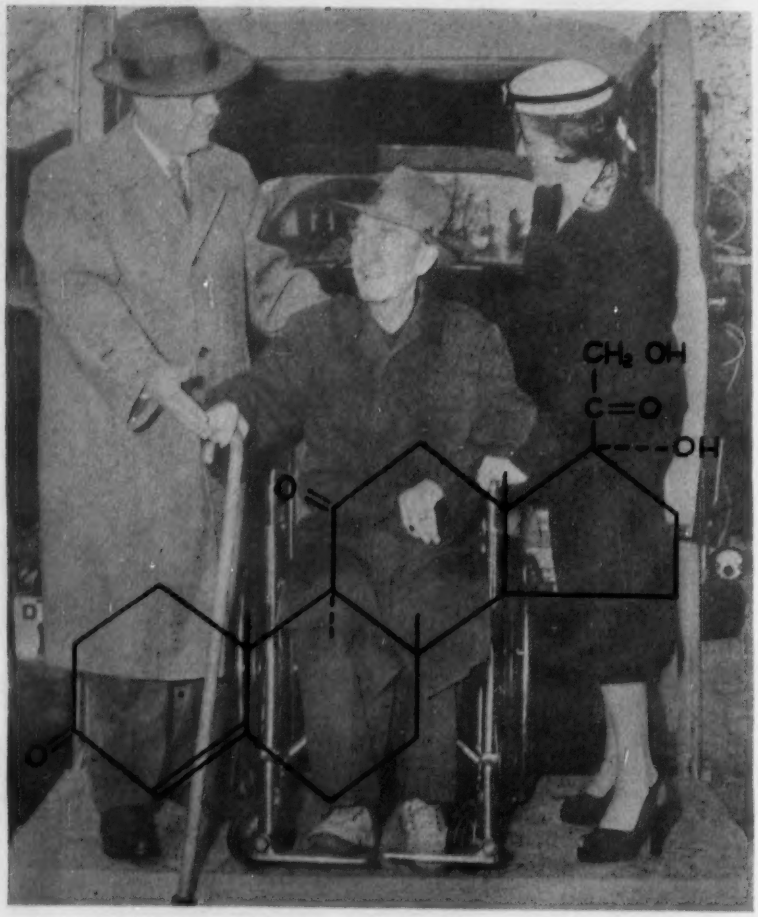

AID FOR ARTHRITICS: Cortisone's facets are anchor points for a swing . . .

Away from Nature

Last week's commercial debut of the new arthritis drug, metacortandracin, points up the increasing research emphasis on highly potent "unnatural" steroids produced by synthesis.

Only a handful of hopeful anti-arthritis agents have thus far emerged from this line of attack; but new compounds are regularly entering into clinical appraisal.

By last week, it was plain that the once-enigmatic cortisone structure had lost much of its mystery. Applying the cumulative know-how of years of intensive studies, steroid chemists have improved upon the cortisone configuration to yield a new commercial arthritis drug and a number of still-experimental hopefuls. Out of this effort, one fact stands clear: steroid hormone research is swinging away from the classical preoccupation with duplicating naturally occurring compounds. The new effort: creating higher-potency "unnatural" variations.

Metacortandracin, released last week by Schering Corp. (under the trademark, Meticorten), is the newcomer to drugstore shelves. The firm is also readying a companion steroid, metacortandralone (Meticortelone), the debut of which is expected shortly.

First disclosed last fall (*CW, Nov. 20, '54, p. 82*), both these drugs have since racked up an impressive record in clinical tests on patients with rheumatoid arthritis. In launching Meticorten, Schering revealed last week that trials of the compound on more than a thousand patients by 103 U.S. doctors showed it to be three to five times more active than the natural hormones, cortisone and hydrocortisone, relatively free of the latter's objectionable side effects.

Chemically, metacortandracin ($C_{21}H_{26}O_5$) differs little from cortisone ($C_{21}H_{28}O_5$). There's no structural clue, as yet, to the former's higher medical potency. But results yielded by the agent in clinical studies have quickened the collective pulse of arthritis probers.

Last year, for example, Dr. Joseph Bunim, clinical director of the National Institute of Arthritis and Metabolic Diseases (Bethesda, Md.) gave the drug to a 55-year-old woman with an 8-year history of crippling rheumatoid arthritis. After 48 hours on metacortandracin, she showed "startling improvement," although she had previously failed to respond to treatment with gold salts, massive aspirin dosage, phenylbutazone, corticotropin (ACTH), cortisone, and hydrocortisone (compound F).

Schering's success with the "meta" drugs hasn't caught other producers napping (*CW, Feb. 12, p. 46*) in the drive for new synthetic hormones. Such companies as Merck, Squibb, Pfizer and Upjohn—along with Schering—are already looking beyond today's steroids at the broad possibilities in human therapy of modified versions.

New as they are, the meta drugs are even now being challenged by products of this effort. Recent clinical tests, reported by the Arthritis and Rheumatism Foundation (New York), revealed, for example, that 9-α-fluorohydrocortisone has 10 times the antirheumatic potency of hydrocortisone. The compound's toxicity precludes its internal use. But other "unnatural" fluorine derivatives of cortisone (*CW, June 13, '54, p. 50*), pioneered by E. R. Squibb & Sons (division of Olin Mathieson Chemical Corp.) are finding topical use against certain skin ailments.

Aldosterone, still in search of a synthesis (*CW, Sept. 18, '54, p. 46*), was recently put through arthritis

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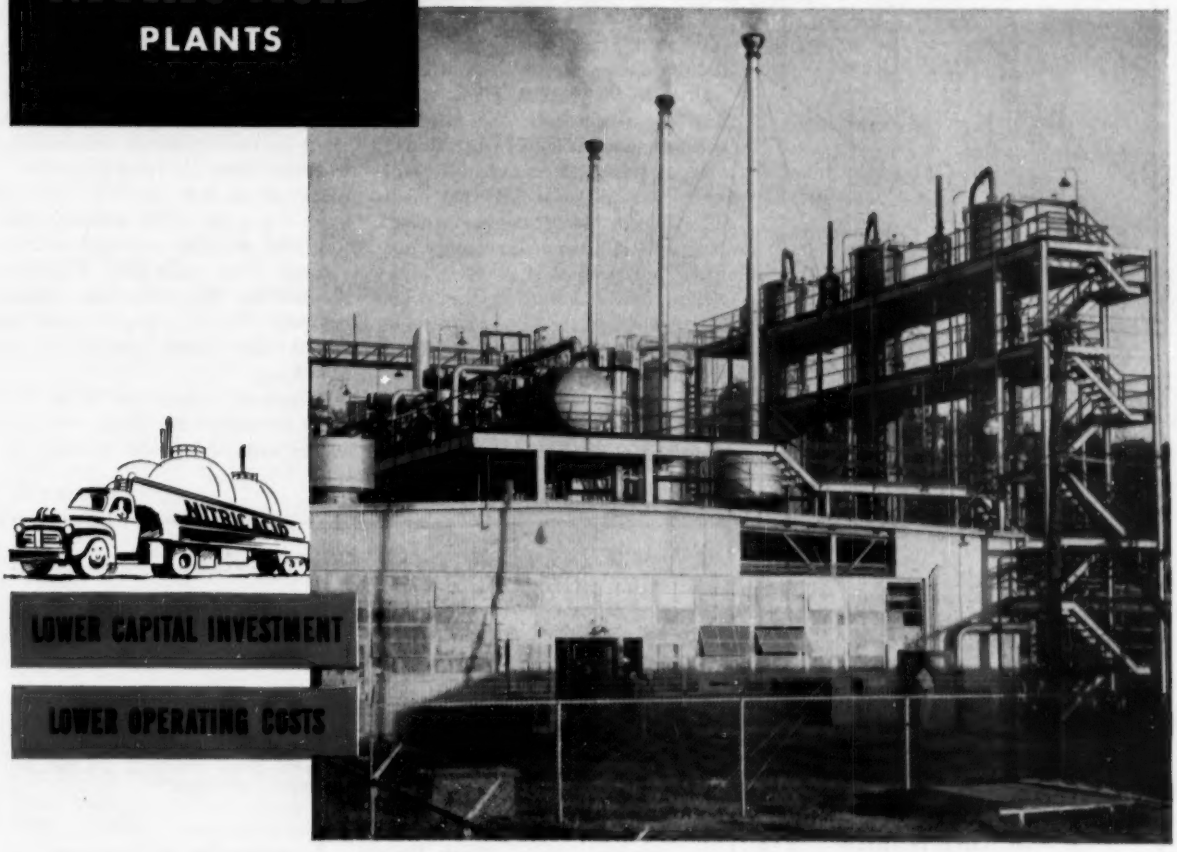

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screening, found to be ineffective and accompanied by severe side effects. Nevertheless, it looms as a valuable agent in the treatment of the related Addison's disease.

Despite the recent giant strides made by researchers, the need for better compounds is still great. Bunim, a leader in the search for anti-arthritic agents, tells *CW* that medical men are "far from complacent" about the antirheumatic agents now available.

He points out further that while the meta drugs are improvements on cortisone and hydrocortisone (with respect to side effects), they still can induce such unwanted responses as hirsutism, gastric distress, and acne.

Moreover, Bunim adds, while steroids constitute the best bet for combating arthritis at the moment, there's no guarantee that an entirely different chemotherapeutic approach would not give better results.

Too, there's general feeling that future steroid drugs probably won't be made by total synthesis, will continue to derive from chemical alteration of plant or animal starting materials (e.g., bile acids, plant steroids). Reason: the stimulus for total-synthesis research must come from a multiton demand for the product—an unlikely prospect if dosage requirements are cut through higher potency of the new drugs.

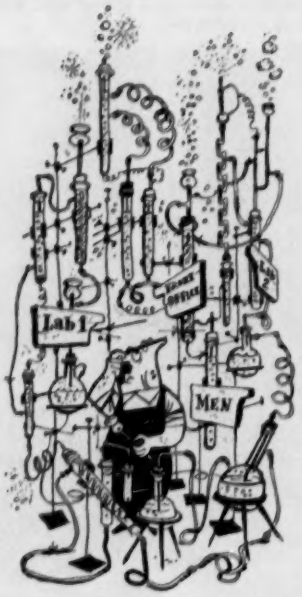
In general, researchers in the field aren't convinced that such newcomers as the meta drugs will quickly sup-

Many Tried, Few Survive

Many chemicals have been tried for the treatment of arthritis but only a few have survived clinical scrutiny. The following have proved their therapeutic value, are used in medical practice.

Drug	Producer	Status
Gold Compounds		
(thioglucose)	Schering	Useful in a small proportion of cases. Toxic reactions are met in 10-20% of users.*
(thiosulfate)	Parke, Davis	
(thiomalate)	Merck	
Natural Hormones		
cortisone	Merck, Upjohn, Schering	In widespread use. Cortisone is discontinued in about 15% of all cases because of inadequate response, in another 10% because of undesirable complications.* Hydrocortisone is less prone to give undesirable side reactions.
hydrocortisone	Merck, Upjohn, Schering, Pfizer	
ACTH	Armour, Wilson	
Phenylbutazone	Geigy	Relatively new. Often provides symptomatic relief *(CW, June 14, '52, p. 30)*, is occasionally toxic. Especially effective against gout. A reported 25% of patients cannot tolerate this drug.*
Salicylates	Many	One of the old standbys in rheumatoid-arthritis treatment. Massive doses often required may produce ill effects, rule out prolonged use. A related drug, gentisic acid *(CW, June 2, '51)*, has also been tried for this purpose.
Modified Hormones		
metacortandracin	Schering†	Now making their commercial debut. These compounds are claimed to have greater potency, fewer side effects than natural hormones.
metacortandralone		

* Source: Arthritis and Rheumatism Foundation (New York).
† Only source in the drug trade as of this writing.



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plant cortisone and hydrocortisone. They argue that hydrocortisone, which has certain advantages over cortisone, has been available for about a year and a half, but that a considerable amount of cortisone is still being sold.

The high cost of new drugs is also expected to militate somewhat against their prompt acceptance. Although metacortandracin is said to be more potent than cortisone, it costs more on a dosage basis—but cost won't keep the drug out of contention.

Like all their predecessors, the meta drugs are not arthritis cures. Drugs alleviate the pain and swelling associated with this disease, assist in therapeutic measures such as physical therapy, psychotherapy, rest, nutrition, etc. Thus far, however, drugs have not been able to get at the disease's cause.

Although arthritis dates back to antiquity,* only in the last three decades has there been any real progress in countering the disease. At the moment, chemotherapeutic agents encompass cortisone, hydrocortisone, ACTH, salicylates, the meta drugs, phenylbutazone, and gold compounds (*see chart, p. 72*).

Other chemicals have a supporting role. For example, Corn Products Refining Co.'s (New York) glucoronolactone is finding increasing acceptance as an adjunct to salicylamide in relieving the pain of arthritis.

Estimates of the market for arthritis drugs vary widely, have been pegged as high as $50 million/year. But the actual cost of arthritis and rheumatic disease to the nation (about 10 million are afflicted†) is probably more than $1 billion in medical care, lost wages, and welfare allowances.

This year, the federal government (via the National Institute of Arthritis and Metabolic Diseases) has allocated $1,860,000 for arthritis research; the Arthritis and Rheumatism Foundation will spend $312,750. Industry's outlay for studies in this area is substantial, but the exact figure is impossible to gauge. Under the impact of this combined attack, arthritis has lost much of its ability to cause pain. Total defeat of the disease, however, is still a dream—but one that is keeping researchers hard at work.

* One early prescription: powdered unicorn's horn.

† Of these, 200,000 are completely disabled and an estimated 4.7 million are disabled part of the time.

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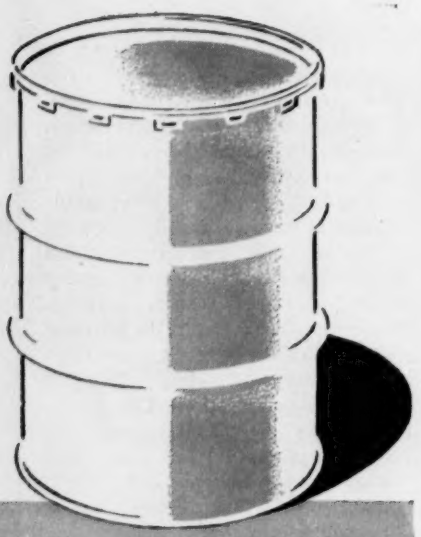
Harshaw

Sodium Methylate SPEC 101



Packaged in airtight steel drums of 25, 50 and 200 lbs. net

Free Flowing white hygroscopic powder

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Packs 4.6 pounds per gallon

Formula $NaOCH_3$

Formula Weight 54.03

CHEMICAL ANALYSIS

Sodium Methylate Typical 97.5%	Methanol Free 0.5
Sodium Hydroxide 0.5	Soluble in Methyl Alcohol
Sodium Carbonate 1.2	Decomposed violently by water
Sodium Formate 0.3	

Standard 95.0% min.

also available

Sodium Methylate Liquid

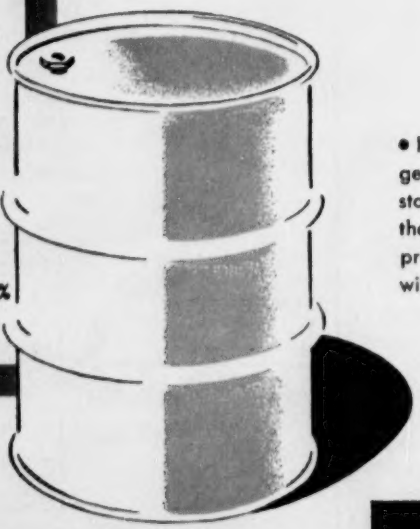
SPEC 102

Packaged in Steel Drums 425 pounds net

25% solution of sodium methylate in methanol

Analysis:

Sodium Methylate Content 24.5 to 25.5%



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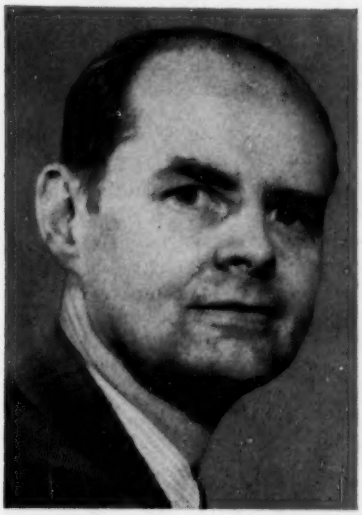


BJORKSTEN: Efficiency is for those who want it.

Sit-Down Speedup

Efficiency is in the same position as lower taxes. Everyone is for it, but very few know how to get it. A common concern for the elusive commodity brought a crowd of research men into Chicago's Engineers Club* one night recently to hear some definite ideas on the subject from fellow efficiency-seeker Johan Bjorksten, president of the Madison, Wis., commercial laboratory bearing his name. Efficiency, says Bjorksten, is for those who want it. His argument: it's useless to try to improve the efficiency of a researcher who isn't interested in becoming more productive.

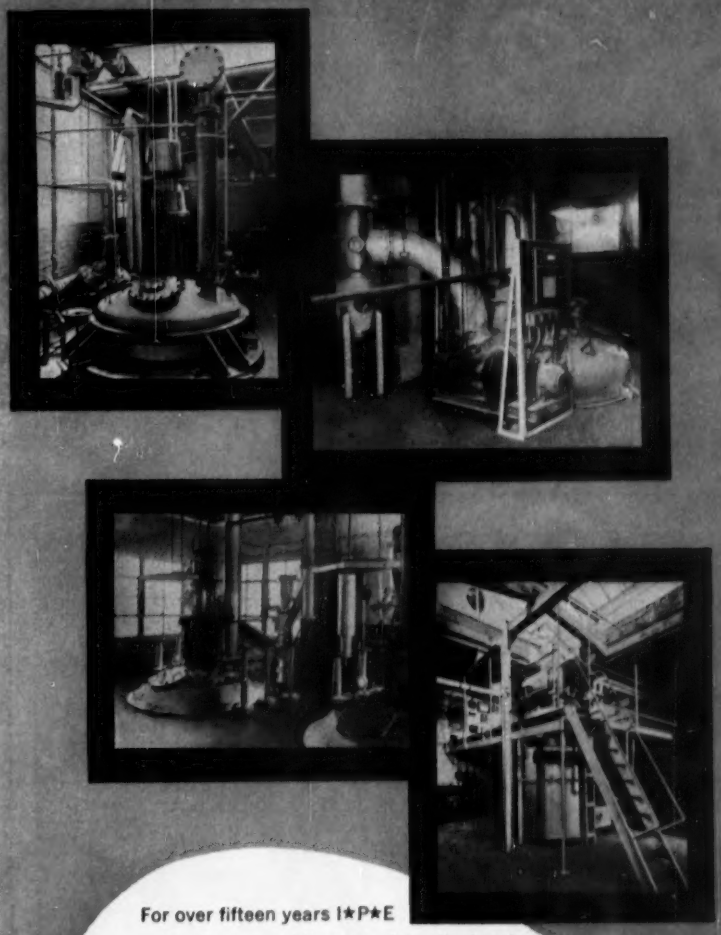
To get him interested, you must provide a reward. Data from time study-incentive experiments tend to prove, according to Bjorksten, that employees wouldn't be bothered with efficiency-boosting work procedures until salary incentives were raised to a substantial increment—about 30%—of the individual's base pay.

Assuming efficiency is desired, what can be done? Bjorksten puts considerable stock in sound planning, statistical evaluation of research before starting the project. But his strongest views are on the subject of making the most of the chemist's mental and physical endowments.

Fatigue is one of Bjorksten's principal demons. "Lab benches," he avers, "are too often built for the conveni-

*For the monthly meeting of the Chicago chapter of American Institute of Chemists.

HOW MANY ALKYD PLANTS MAKE AN EXPERT?



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ence of the carpenter instead of the chemist. No chemist can sit comfortably at a straight-sided bench with no knee room."

"Transportation has advanced because of the human desire to get somewhere sitting down." The research man, too, Bjorksten believes, can get places sitting down—with less fatigue, greater manual and mental efficiency—if you give him a comfortable seat to sit on.

No Confusion: But comfort is sharply distinguished from laziness in Bjorksten's mind. He doesn't hold, for example, with offices for researchers. Giving the man an office with his name on the door may make him happier. But, according to the consulting lab chief, it will also make him less productive. An office, he believes, is a space to which a chemist retires when he wants to do nothing. The best research is done, says Bjorksten, where the ratio of office-to-lab space is low.

Another important rule for the researcher, he maintains, is never do anything that accessory help (i.e., technicians) can do as well. But be sure that the technician can really do the job as well, that technicians are not indiscriminately given only those tasks that researchers find tedious. Used properly, states Bjorksten, lab technicians can mean substantial savings to a laboratory.

He also prescribes that supervisors, administrators, etc., spend at least one day a month in the lab. They will find bottlenecks that may not be apparent to the man at the bench. They may also run into unforeseen situations that cry for correction. In one case, recounts Bjorksten, work was being held up for lack of a thermometer. Some detective work by a supervisor turned up the fact that chemists were not requisitioning replacements for broken thermometers. Reason: a number of thermometers had been lost that month and researchers feared questions on the excess breakage. So they spent $10 worth of time looking for an idle $5 thermometer to use. That kind of arithmetic, Bjorksten wryly advises, never made a profit for anyone.

This sort of thing definitely comes under the vital "human element" heading. So does another of Bjorksten's injunctions: show your researchers that they're in your confidence; let them know why they are doing the job and what its significance is to the company.

Plastic Horseshoe for a Smooth Ride

THE FACE behind the plastic horseshoe is that of Westinghouse researcher Howard Kaufman, who plays a role in lubricant studies now in progress at the firm's Pittsburgh, Pa., laboratories. The horseshoe is a model of a bearing that supports the 200-inch Mt. Palomar (Calif.) telescope. Lubrication, developed with the plastic replica, allows the 500-ton telescope to be moved with a washing-machine-size ½-hp. motor. Plastic models are being used in other studies, as well.

In Better Shape

The simple way to make calcium hydride is by passing hydrogen over hot calcium. And, in most cases, the simple way is the best way. But, where a pure, powdered product is required, simplicity must give way to a measure of astute innovation. Result of that compromise is a new Metal Hydrides (Beverly, Mass.) process that turns out a 99%-plus pure, highly reactive form of calcium hydride.

The product, comprising 25% of finely powdered calcium hydride dispersed throughout a powdered mass of solid sodium chloride (easily removed with anhydrous ammonia), will soon be available in quantity. Cost is now 25¢/lb. of mix (or $1/lb. of contained calcium hydride), but the company states that this will be "repriced downward" when production gets under way.

Metallurgy represents the most fertile area of opportunity for the refined hydride. A powerful reducing agent, it should prove valuable in preparing highly pure powdered metals and alloys. Metal Hydrides reveals that it has produced (experimentally) sheet titanium of Kroll quality from titanium powder made with calcium hydride.

Derived from titanium tetrachloride (*see p. 84*), the metal powder is first obtained as powdered titanium hy-

The laboratory methylating equipment shown above is being explained by Dr. T. R. Patterson, head of our Methylation Department.

Your methylating problems could end here!

If you have a problem relating to the methylation of an organic compound, why not call in an Ansul specialist? It actually isn't necessary to start at the "beginning." Methylation has been a specialty of ours since 1936. The experience we have gained by methylating more than 100 compounds during the last 18 years is at your disposal to help solve your particular problem.

Our methylation laboratory is equipped to take over your methylating problem at *any stage of development* and come up with a practical answer. We have manufacturing facilities for producing commercial quantities of a methylated compound to your specification.

Ansul is a major producer of methyl chloride and prepared to supply you with quantities ranging from laboratory cylinders to tank car lots. Our methyl chloride is available in cylinders of 100 lbs., 140 lbs., and 1300 lbs., and tank cars of 40,000 lbs. and 78,000 lbs. Delivery is prompt.

Address your correspondence to the head of our methylation laboratory, Dr. T. R. Patterson, ANSUL CHEMICAL COMPANY, Dept. C-15, Industrial Chemicals Products, Marinette, Wisconsin.

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dride, which, upon degassing, yields the pure metal. Other pure metal powders and alloys, prepared in comparable fashion with the new hydride, are now being studied by the company. Metal Hydrides' titanium process, incidentally, is said to lend itself to continuous operation, but that's as far as the company will go in drawing comparisons with the Kroll method.

Chemical applications for calcium hydride revolve around its prowess as a reducing and condensing agent. In these capacities it could find a place in aldol-type organic syntheses, fat treatment, desulfurization of fine oil stocks, and as a hydrogenation catalyst.

A powerful drying agent (more powerful than P_2O_5), as well, the compound is useful in superdrying inert liquids and gases. Added asset: unlike absorptive drying agents, its effectiveness increases with rising temperature.

Claim to Fame: The new calcium hydride results from the reaction at several hundred degrees C of calcium chloride, sodium and hydrogen. The state in which the product is yielded (a fine powder) is its chief bid for commercial employment and its point of departure from previously available calcium hydride produced by treating

New Assignment

THIS BUILDING is a blood-brother of an oil tank; it was once a tank, itself. Last week, however, its transformation into a donut-shaped research building (*CW, Sept. 18, '54, p. 48*) was well under way. Squatting on Continental Oil's Ponca City, Okla., tank farm, the structure is costing $0.5 million to convert.

Louisville Method

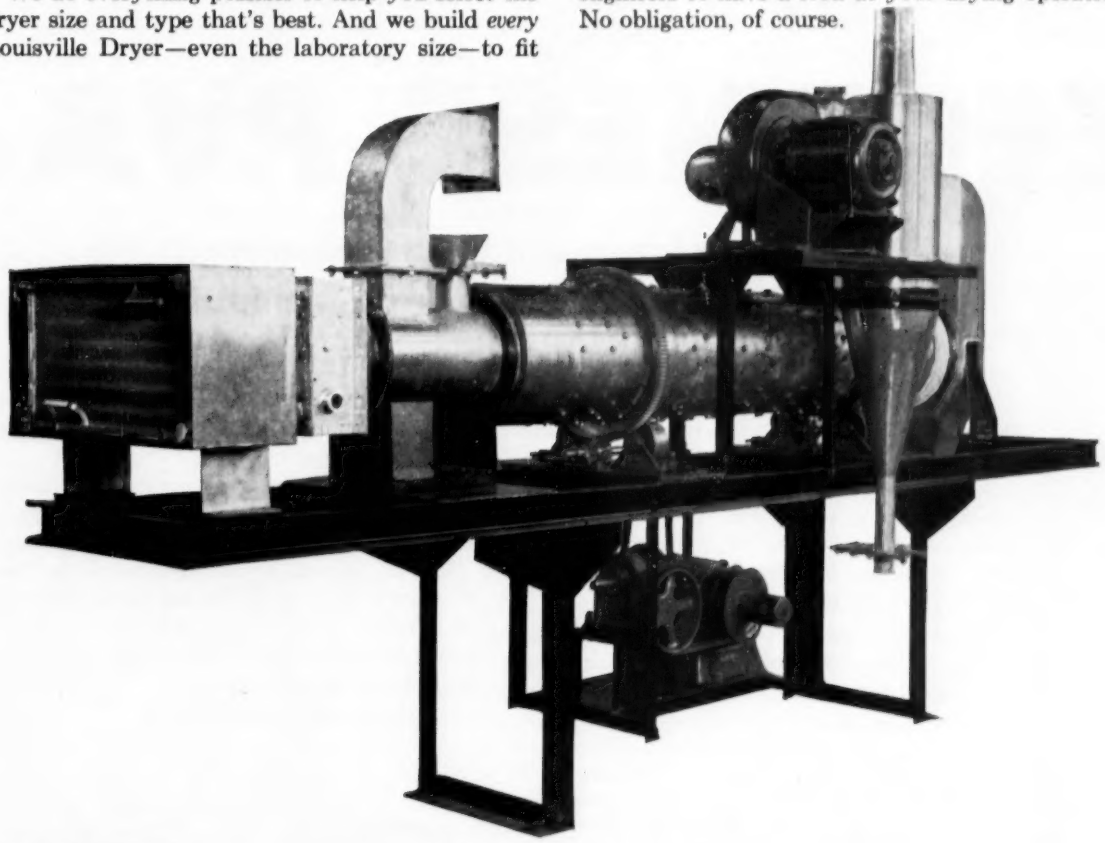
how **BIG** should a dryer be?

"Baby" Louisville Dryers do a man-sized production job for chemical firm

A large chemical firm has twice bought small, laboratory-size Louisville Dryers to serve as pilot plants for new materials. In both cases, their engineers were amazed to find the pilot dryers were producing sufficient quantities to supply the market!

We do everything possible to help you select the dryer size and type that's best. And we build *every* Louisville Dryer—even the laboratory size—to fit the job, and to give years of satisfactory performance at rock-bottom maintenance cost.

Let Louisville's 53 years of drying experience, spanning thousands of installations for all types of industry, work for you. Why not ask one of our engineers to have a look at your drying operation? No obligation, of course.



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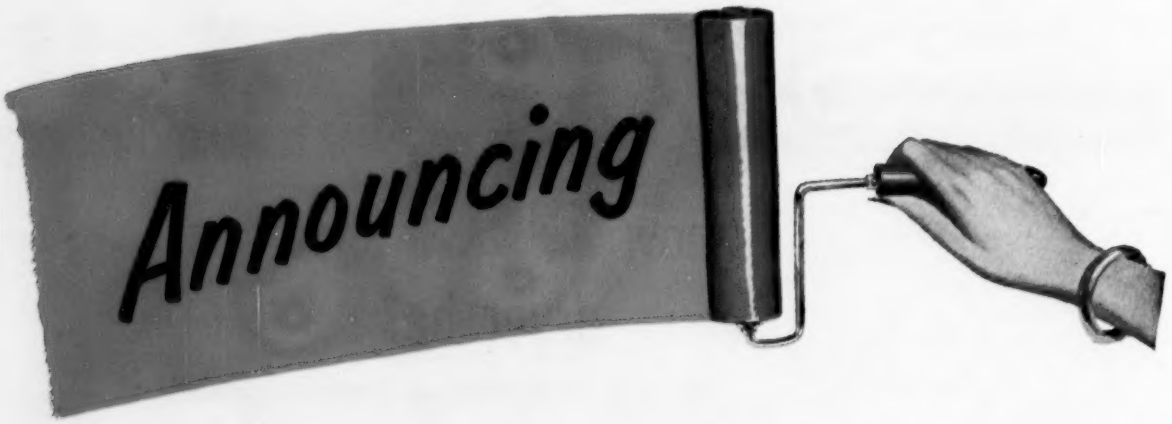

Celanese Plastics Division is now a direct source for Polyvinyl Acetate Emulsions

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from Celanese-produced monomer . . . homopolymer and copolymer resin emulsions for latex type water based paints and primers

The Celanese PVA series of Polyvinyl acetate emulsions—both the homopolymer and copolymer types—is available for immediate shipment. Developed by the Plastics Division of Celanese, these emulsions are processed from Celanese—petro-basically produced monomer, and engineered to meet the rigid requirements of the paint industry.

With the growing popularity of latex-type paints in the *do-it-yourself* market, and the increased use of vinyl products, this new Celanese source gives manufacturers the dependable, continuous supply and price stability they are looking for.

The Celanese technical service department is set up to give detailed assistance in the development of paints with polyvinyl acetate emulsions. Use the coupon below to receive the New Product Bulletin on PVAc emulsions for paints or write to

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Plastics Division, Box 163-C,
290 Ferry Street, Newark 5, N. J.

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PLASTICS and RESINS

*Reg. U. S. Pat. Off.

calcium with hydrogen. Essentially a physical process, the older method yields a product available as small bars, crushed lumps or a coarse powder.

Hydrogen generators based on these cruder forms of the material are familiar to the armed forces and are now available to industry.

The powdered calcium hydride opens a new range of chemical and metallurgical applications for the compound. It also augurs the appearance of potentially valuable powdered hydrides of other metals.

New Solvent: Pilot-plant quantities of 1,4-thioxane are newly available from Thiokol Chemical Corp. (Trenton, N.J.). A water-white mobile liquid (B.P. 148.7 C), the compound exerts strong solvent action on resins, plastics and elastomers, doubles as a chemical intermediate in addition and oxidation reactions. It is miscible with acetic acid, acetone, benzene, ethyl alcohol and trichloroethylene, immiscible with water, carbon disulfide and glycerine.

•

Dispersion Aid: Just introduced by Kinetic Dispersion Corp. (Buffalo, N.Y.) is an improved laboratory version of the firm's high-speed, "Kady" dispersion mill, which functions without shearing action or reliance on close tolerances between moving parts under pressure. One indicated use: metallic sodium dispersion.

•

Red Tide Update: U.S. Fish & Wildlife Service officials now estimate that it will take about three more years to find adequate preventive measures for Red Tide (*CW, Nov. 20, '54, p. 80*), Florida's fish-killing red algae. L. A. Walford, chief of the branch of fishery biology, reports that the government is spending $162,000/year on Red Tide research, the No. 1 project of the service.

Dual aim of USFWS is to pinpoint the time and place where Red Tide is likely to break out, then to be on the spot with chemical control measures. Researchers have found that the alga is normally controlled by toxic metal ions in sea water. The plant organisms multiply feverishly when these ions (notably copper) are removed by sulfides draining into the ocean from southern Florida streams. Experimentally, copper sulfate has

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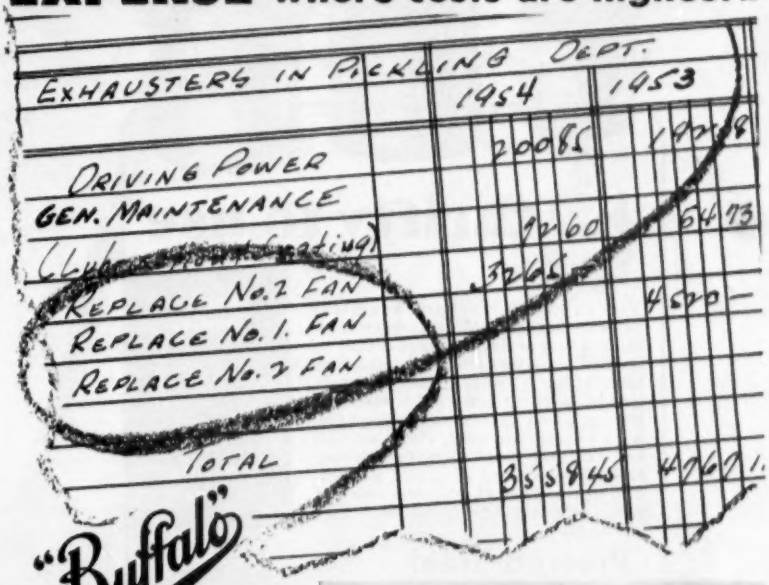
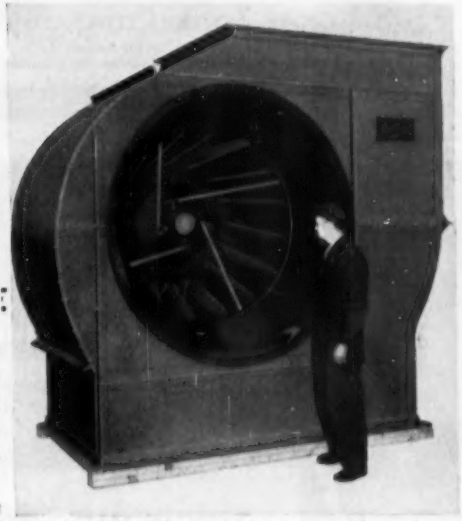


"Buffalo"

RUBBER-LINED EXHAUSTERS LAST 3 TO 12 TIMES LONGER THAN ORDINARY FANS!



Ever analyze your costs of removing corrosive fumes? If the exhausters are ordinary metal, without a doubt, your costs will prove high; and the most costly item will be exhauster replacements! Get exhausters that last longer, and you've cut the biggest part of your costs.

"Buffalo" Rubber-Lined Fans outlast other fans because all interior parts are protected from the fumes by a layer of rubber vulcanized to the metal. It's nothing new — these "Buffalo" Fans have been saving money and down-time for chemical industries for years and years. They're ready to do the same for you. Write for *Bulletin 2424-F* and see the "Buffalo" "Q" Factor* ready to work for your plant.

**The "Q" Factor — the built-in Quality which provides trouble-free satisfaction and long life.*

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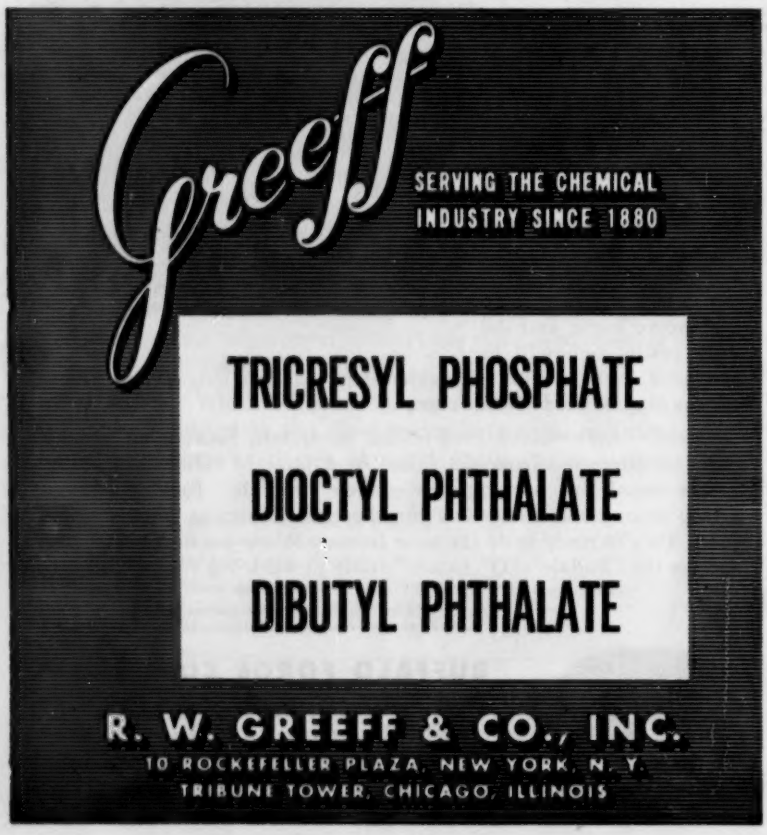


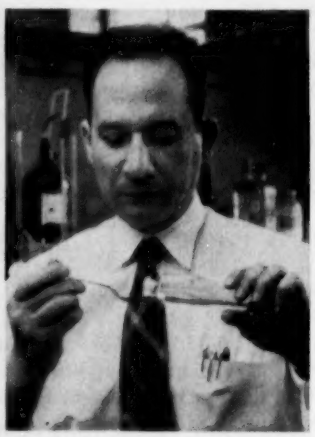
checked the algae's rapid growth. Cost of this control measure is now being studied.

•

New Guide: The new *Directory of Commercial and College Testing Laboratories* is now available from the American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. Price: $1/copy. The publication lists the location of testing laboratories, types of services they offer.

•

Southern Lab: Colombia's (S.A.) first laboratory center devoted specifically to technological research will soon be established in Bogota, says Armour Research Foundation (of Illinois Institute of Technology), which will supply technical assistance to the project. Named the Departamento de Investigaciones Tecnologicas, the new center will carry on research in the fields of agriculture, industry and mining. Paul Gollong, manager of ARF's international department, says the foundation's initial contract (with a Colombian bank) is for three years.



Call of Duty

INSTRUMENTATION may be a boon to many research men, but it isn't much help to oil chemist John Turer, of L. Sonneborn Sons (New York). Last week, as ever, Turer and fellow oil chemists were tasting spoonfuls of white mineral oil to determine the effectiveness of refining techniques. (Samples must be tasteless.) No instrument exists for this unenviable job.

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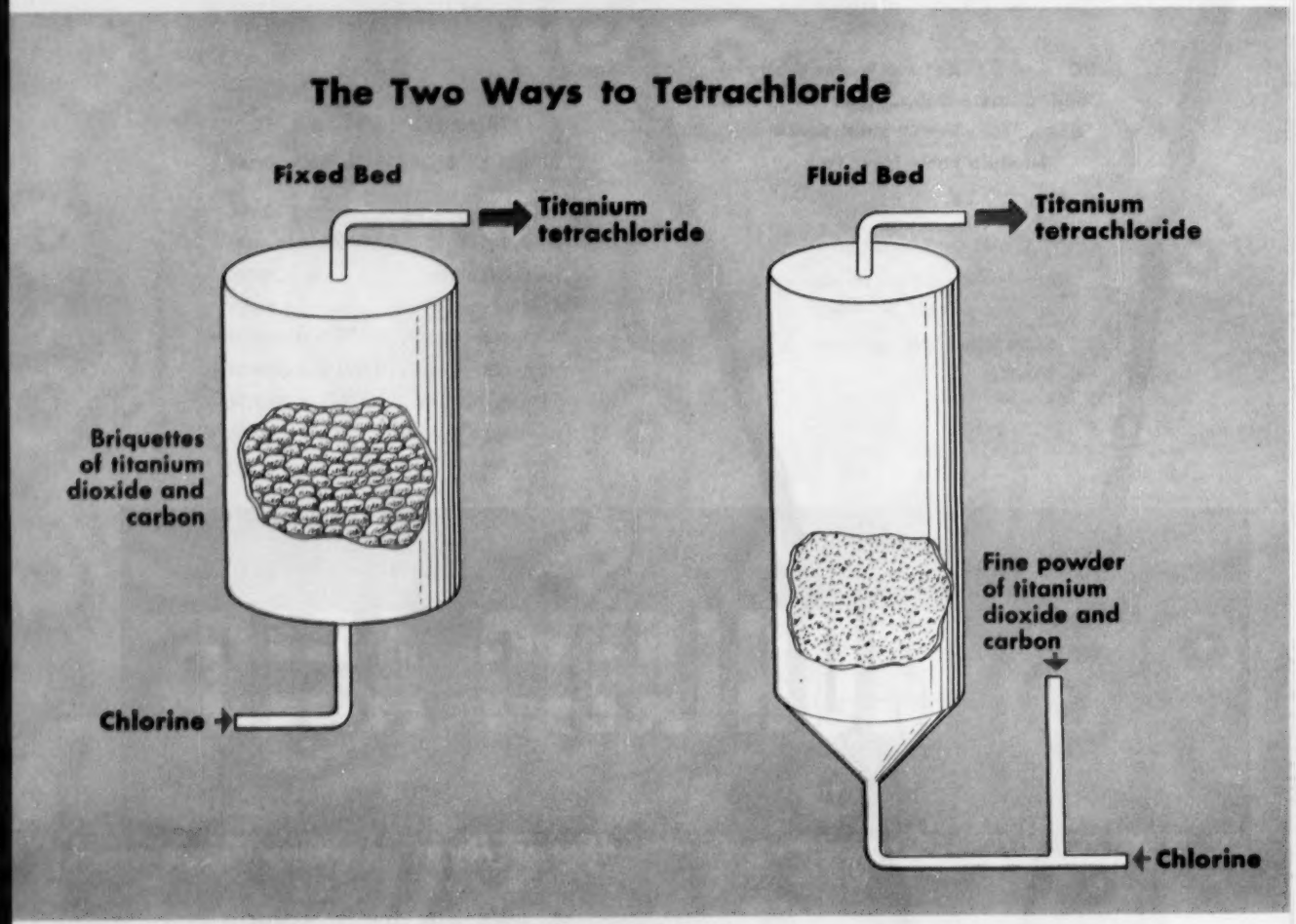


CHLORINATING TITANIUM ORE: Instead of briquettes, a fluid bed.

Fluid Route Bypasses Problems

Here's Du Pont's hush-hush process of making titanium tetrachloride, intermediate for pigment and metal.

It's a direct, fluid-bed chlorination adaptable to either ilmenite or the titanium slag coming out of Canada.

One of Du Pont's proudest achievements has been its method of chlorinating titanium ore to get titanium tetrachloride—key starting point for titanium metal (by reduction) or titanium dioxide (by oxidation). It's also been one of the firm's best-kept secrets. Two patents (U.S. 2,701,179 and 2,701,180) just issued to the company identify the method as a fluid-bed chlorination.

The normal procedure of obtaining titanium tetrachloride is to chlorinate briquettes or pellets of titania and a carbonaceous reducing agent. As Du Pont sees it, this method has some inherent drawbacks. In the first place, a binder must be used in preparing the pellets. But the binders contain hydrogen, which will cause chlorine losses by reacting to form hydrogen chloride. So the briquettes must be calcined to drive off hydrogen.

The briquetting and calcining facilities entail a sizable capital investment. Moreover, the introduction of the material to the furnace and the removal of ash—while assuring against loss of chlorine or gaseous products—calls for special equipment.

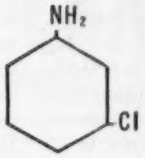
Also, the furnace poses problems of localized overheating of the solids, which in turn can cause sintering and excessive clinker formation. And the briquettes must be of a certain minimum size to permit passage of the chlorine through the bed. But as their size is increased, the surface area is decreased. And that means lower reaction rates and bigger equipment.

Fluid Bypass: The fluid-bed process, on the other hand, bypasses many of these problems. Just how Du Pont accommodates the process in commercial equipment is something the

m-Chloroaniline *

A water-white to light-amber liquid that tends to darken on storage. It is available in a stabilized form to retard color development. # The sum of the ortho and para isomers is under 2%.

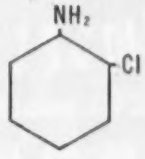
 # m-Chloroaniline S Technical



SPECIFICATIONS:
Purity: 98.0% minimum
Freezing Point: — 11°C. minimum
Moisture Content: 0.5% maximum
Molecular Weight: 127.6

o-Chloroaniline *

A water-white solid which darkens on storage. It may contain up to 3% isomers, chiefly para.

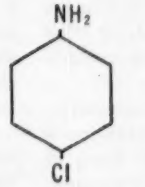


SPECIFICATIONS:
Purity: 99.5% minimum, by nitrite absorption
o-Chloroaniline Content: 97% minimum
Moisture Content: 0.2%

p-Chloroaniline *

A water-white to light-amber solid that tends to darken on storage. It is available in a stabilized form to retard color development. # Both forms may contain from 0.5 to 1.0% each of ortho and meta isomers and traces of aniline. p-Chloroaniline is soluble in alcohol and acetone, very slightly soluble in water.

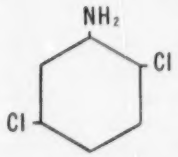
 # p-Chloroaniline S Technical



SPECIFICATIONS:
Purity: 97.5% minimum
Moisture Content: 0.15% maximum

2,5-Dichloroaniline *

A white to dull-red-brown solid. Soluble in organic solvents and dilute hydrochloric acid. Slightly soluble in water. It may contain up to 1.0% m-chloroaniline and traces of 2,5-dichloronitrobenzene as impurities.



SPECIFICATIONS:
Purity: 99.0% minimum, by nitrite absorption.

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EMCOL E-11, our nice smelling 50% alkyl benzyl triethyl ammonium chloride is just the ticket to control slime in cooling tower waters. Tests made in some large installations have worked out exceptionally well—and at low cost. The bugs won't like it—but you will.

YOUR PROBLEM IS NEXT...

If you've a production headache that might respond to the proper surfactant, sit down and give us the details on your letterhead. We may have the answer sitting "in stock" . . . or perhaps we'll be able to invent it for you. Write Department CW.

EMULSOL

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firm is still loth to discuss. In a typical run, cited in the patents, however, this is how it worked:

The reactor was heated to 800-850 C by the products of combustion from an oil burner. The finely powdered charge (of 100 parts ilmenite to 15 parts of hard burned coal) was fed from a hopper, preheated by the gaseous products and sent to a cyclone. From there it fell through a pipe into the line being used to introduce hot gases and chlorine to the reactor.

The bed formed in the reactor was approximately 3 ft. deep. When the charge reached the desired temperature of 800 C, the flow of hot gases was shut off and chlorine was introduced at the rate of 1144 lbs./hour, equivalent to a linear flow rate in the reactor of 1.2 ft./second. At the same time, the ore-coke feed was charged at a rate of 772 lbs./hour.

To avoid overheating in the reactor, a portion of the bed was withdrawn and cooled. After about 15 hours of chlorination, coarse ash had accumulated so that the material in the reactor analyzed between 15-20% titanium dioxide. At this point, periodic ash removal was started. It was removed from the reactor (through the same outlet used to circulate the bed for cooling purposes) and sent through a cyclone. The total ash formed was small, however (less than 10% by weight of the feed), and was removed intermittently at a rate of approximately 65 lbs./hour.

Products from the reaction, titanium tetrachloride and ferric chloride, are then condensed and separated.

The Other Way: This method of approach differs sharply from the more conventional processes of making the tetrachloride. Titanium Metals Corp., for instance, at its Henderson, Nev., plant does it like this:

The titanium ore (rutile) is blended with ground coke; coal tar is used as a binder. After thorough mixing, it's fed onto the bed of a circular tunnel kiln where the volatiles are burned off and the tar is coked. Since carbon is lost in this step, an excess must be used in formulation so that there's enough carbon left to react with the titanium dioxide. The mixture leaves the kiln as a coked, porous, hard mass, which is broken up to form briquettes.

The chlorinator is a cylindrical furnace packed with carbon resistor blocks at the bottom, used to heat the reactor initially and to supply the heat necessary to keep it at 800 C. Briquettes are fed intermittently from the top of the reactor to form a bed on top of the resistor blocks and chlorine is introduced near the bottom of the furnace. Even when using rutile, the impurities present cause ash formation and the furnace must be shut down and cleaned periodically.

Products from the chlorinator are sent through a dust collector to remove suspended particles, condensed in spray towers and pumped to a settling tank where insolubles and sludge are removed. Finally, the tetrachloride is purified preparatory to being charged to the reduction furnace.

Need for Purity: In theory, preparation of titanium tetrachloride is a simple, straightforward reaction. Raw materials are chlorine, available and cheap, and titanium ore, which sells for a few cents a pound.

But on a commercial scale, it's a ticklish operation, at best. The necessary high temperatures and presence of chlorine raise corrosion problems. (Du Pont employs Type 316 as well as Type 310 stainless in its reactors.) And the formation of ash is a persistent problem, means that a relatively pure titanium ore must be used.

The titanium industry, in particular, is being urged to exploit domestic titanium ores, which are lower in titanium content. The titanium-rich slag being turned out by Quebec Iron & Titanium (*CW, Oct. 11, '52, p. 39*), for instance, is looked on as a potentially significant starting material for titanium producers.

As yet, no one has used the slag commercially to make titanium metal, largely because of the presence of impurities. However, in the second patent covering its fluid-bed operation, Du Pont shows how it's feasible to employ the slag therein.

The difficulty in adapting the slag to the fluid-bed process is that it contains some alkaline earths and alkali metal compounds, which form chlorides that volatilize at temperatures below that used in the chlorination. Du Pont gets around this by withdrawing some of the fluidized solids, sending them through successive steps of aqueous leaching, filtration, drying and then returning them to the reactor. Du Pont, which owns ilmenite mines, is missing no bets on other raw material sources.

THE PERKIN-ELMER

INSTRUMENT DIGEST

A condensation of some articles in the Winter issue of THE PERKIN-ELMER *INSTRUMENT NEWS*, a publication of The Perkin-Elmer Corporation, manufacturers of scientific instruments—Infrared Spectrometers, Tiselius Electrophoresis Apparatus, Monochromators, Flame Photometers, Continuous Infrared Analyzers, Vernistats, Amplifiers, Astronomical Equipment, Thermocouples, Lenses, Crystal Optics, Special Designs for the Government.
For further information, write The Perkin-Elmer Corp., Norwalk, Conn. Offices in: New Orleans, Chicago, Washington, D. C., and Zurich.

Norwalk, Conn. | March, 1955 | Vol. 6, No. 2

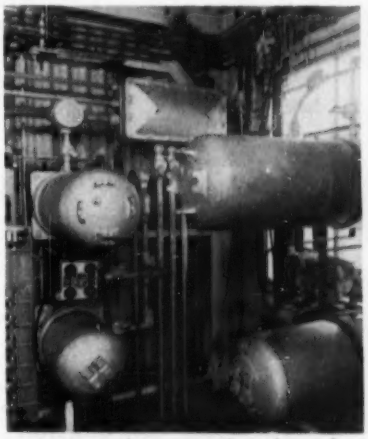
TRI-NONs MONITOR PROCESS STREAMS AT CYANAMID'S NEW FORTIER PLANT

Principal product of the new $50,000,000 American Cyanamid plant at Fortier, La. is acrylonitrile, with ammonia and acetylene as important by-products and intermediates. Nearly a dozen Perkin-Elmer TRI-NON* Analyzers are now on the line to provide continuous analytical information to the operators of the various units.

In the ammonia unit, for example, four low range (0-50 ppm) TRI-NONs monitor CO and CO_2 in the feed streams to the reactor to warn against the possibility of catalyst poisoning. Other instruments keep tabs on various phases of acetylene production and purification.

After several months of operation, Cyanamid officials are convinced that the analyzers are of valuable assistance in several ways. They provide practically instantaneous information on stream composition and thereby keep production units at top efficiency. They give ample warning of dangerous situations before they grow out of hand as, for example, in warning of catalyst poisoning in the ammonia unit. Operating economies are considerable.

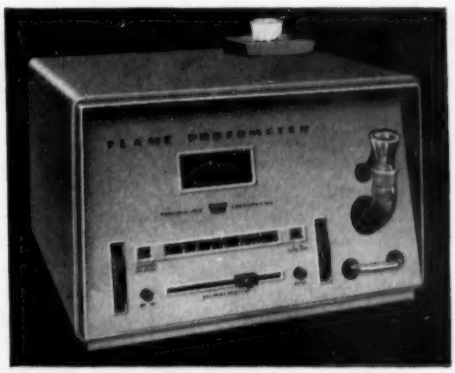
*TM The Perkin-Elmer Corporation



TRI-NONs *monitor ammonia and acetylene process streams at Fortier.*

New Flame Photometer Introduced

Newly designed atomizer and burner operate on city gas



Recognizing the ever-growing important role that flame photometry is playing in modern analytical methods, Perkin-Elmer is now in production with a new flame photometer – Model 146. Particular attention has been paid to making the Model 146 an attractive, completely functional instrument, more simple to use than ever before. It retains many of the tried-and-tested features of the well-known Model 52-C. With its new stainless steel burner and simplified atomizer, the Model 146 will operate on any type of gas: natural, city, propane or acetylene.

● **Functional** – The redesigned front panel presents a clean, modern, uncluttered look. The sloping front allows all meters and indicators to be read and adjusted quickly and easily from a sitting position. Knurled wheels on the front panel control operation of the internal standard measuring adjustments for comparing sample with standard. These knobs are controlled by thumb movement with the hands resting comfortably on the top, reducing operator fatigue and resulting in more accurate routine analyses. All readings are done at a glance from numerical indicators.

Atomizer and burner of the Model 146 are readily disassembled for simple servicing. The top, back and sides of the instrument come off as a single unit, quickly exposing all parts for inspection or replacement.

Process Stream Instrument Line Expanded

For more than a year now, TRI-NON Analyzers have been operating on-stream in a number of chemical processing plants. The streams chosen for field testing presented a variety of problems from the simple to the most complex. In all cases the TRI-NONs have proved dependable and in many cases their performance far exceeded the problem's requirements.

Once we were assured of the analyzers' field performance, we began a development program to provide a series of TRI-NONs covering a range of problems for the processing industry...with prices reflecting only the requirements of the problem. These analyzers are now ready—with prices starting at somewhat less than $4,000.

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Pollution Gets International

It may be only cold comfort to the man trying hard to clean up his stack effluent. But people in other countries have air pollution problems too, as witnessed by those who attended the First International Congress on Air Pollution sponsored by the ASME and held in New York's Hotel Statler last fortnight.

The meeting drew scientists and engineers from seven countries. Speakers, besides those from this country and Canada, included men from England, France, Portugal, Italy and the Netherlands. The congress was divided into six sessions; each dealt with a different phase of the over-all air pollution question.

Main speaker was Britain's Sir Hugh Beaver who sketched the history of air pollution in Great Britain and the development of public opinion which eventually brought about agitation and action. As head of the Committee to Examine the Nature, Causes and Effects of Air Pollution, he submitted the recent final report on London's smog disaster of 1952, which claimed a total of more than 4000 victims during a period of only four days.

Build Higher: Possibly of more direct interest to the man looking for technological ideas was a talk by the same country's R. L. Rees, chief chemist of the nationalized British Electricity Authority.

Speaking of the various methods of removing sulfur dioxide from the stacks of power plants, he said that the best solution—at present— was to forget about removing the gases and simply build taller stacks.

Absorption of the dioxide by dry reagents, he pointed out, presents serious difficulties. Washing systems, on the other hand, result in cooling the gas—so that it tends to flow downward rather than into the atmosphere. This and other problems lead him to believe that the best idea is simply taller stacks.

What Not to Do: Talking on management aspects of air pollution, G. E. Pendray (Pendray & Co., New York) described what he calls the industrial "air pollution syndrome." It might be aptly termed a "short course in what not to do about pollution." It goes like this:

A complaint is made to a plant manager that his plant is emitting smoke, fly ash or fumes. The complainer may at this juncture be friendly to the management. But the plant manager denies vehemently that any such situation exists.

Then, as the discussion warms up, the plant manager takes the tack that, after all, it's an industrial area and the community must expect some air pollution. Then everyone is angry —and, to top it off, the management suggests that the movement is the work of "crackpots."

Says Pendray: ". . . management asks advice of legal counsel. Lawsuits are being talked of and maybe some have actually been filed. The lawyer generally counsels that to make any kind of a statement, other than denial may constitute an admission of fault and therefore be costly. So management . . . now takes a worse step. It begins to act guilty and refuses to discuss the pollution problem . . ."

Then the by-then irate citizens are forced to take their own action. They push through a pollution ordinance or toughen one that's already on the books.

The net result is that the plant is forced to install equipment. And sometimes, the cost is greater than it might have been because unnecessarily strict limitations have been laid down. More important, the company has made a bad name for itself which it may never live down.

What to Do: The alternative, says Pendray, is actually simple: Do good and then let the people know about it. Specifically, he recommends four steps:

- Recognize the existence of the problem promptly. If people of the community think you have a problem, you do.
- Move in on the trouble with all the technological means at your disposal.
- No matter what you do, explain it to the public. Chances are that people will be patient if they understand the circumstances.
- Make sure that your community relations in other respects are good. Sometimes public indignation about pollution is only the outlet for a general feeling of ill-will.

Whatever your product, chances are that Rheem has already developed special linings to protect it for shipment in steel drums

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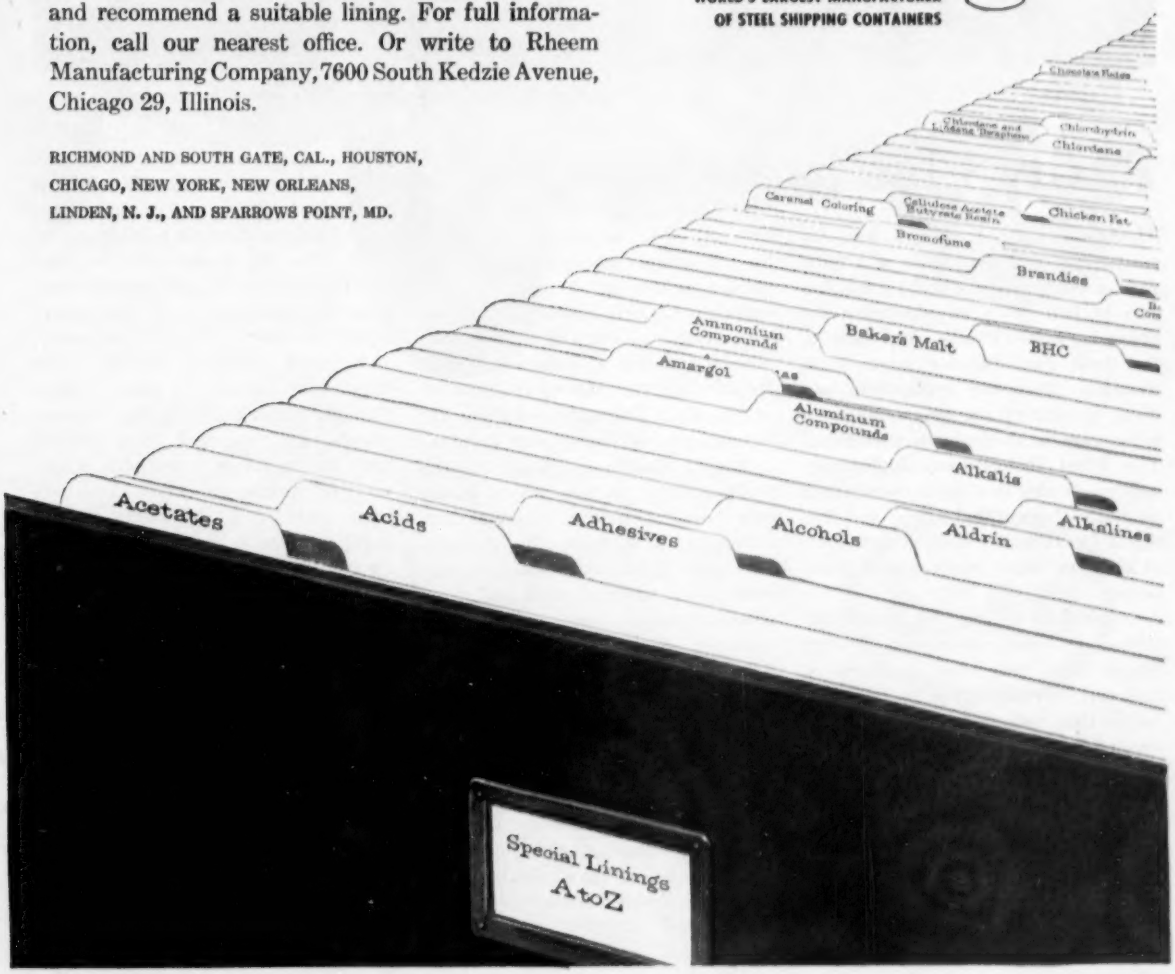

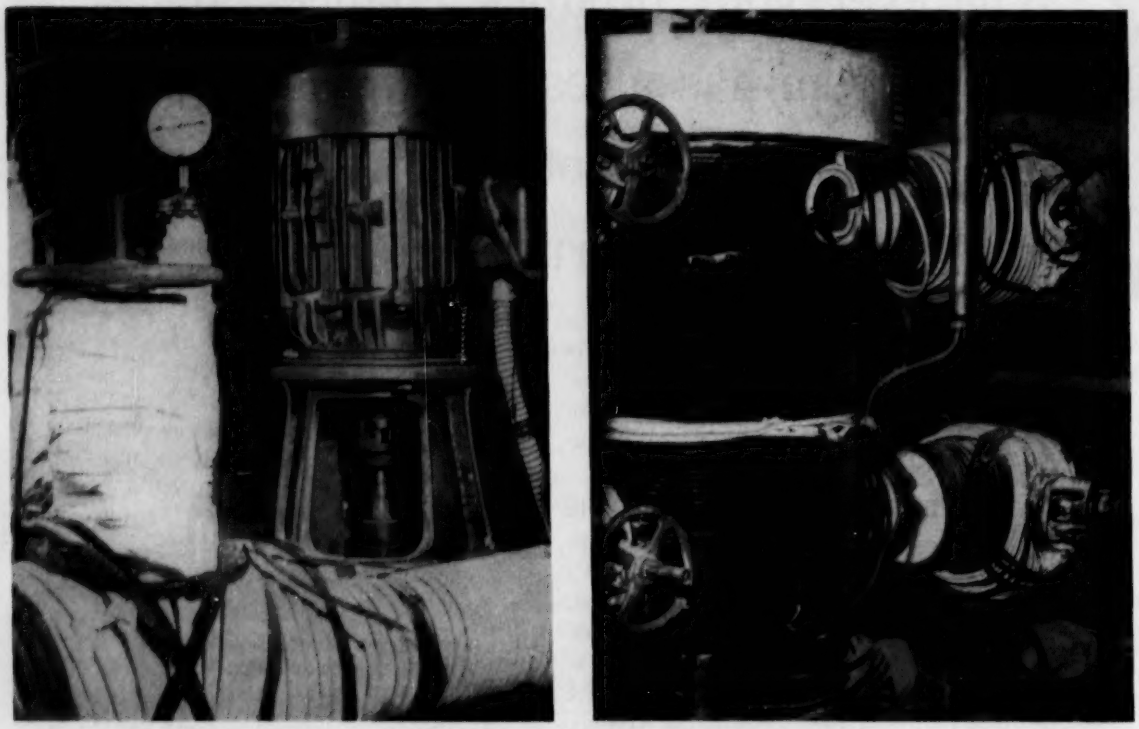

INSULATED PUMP (left) forces Ethyl's high-purity sodium through microporous filters under argon blanket.

Purity Plus in Sodium

Though its high reactivity has, for convenient use, been more of a bane than a boon, metallic sodium has begun to live down its reputation for being too hot to handle. And clearing the path for sodium's advance in chemical processing applications, sodium producers are promoting new techniques to diversify its usefulness. The latest development—high-purity sodium—is now flowing in commercial quantities from Ethyl Corp. and National Distillers for sodium reduction of titanium, other purity-critical processes.

As applied to sodium, the term "high purity" is really misleading, for the regular-grade cast solid, in drums or tank cars, runs as high as 99.95% pure —more than enough to meet minimum requirements of present large consumers. But the growing interest in the sodium reduction process for titanium (*CW, Feb. 19, p. 34*) points up a need for quality improvement—not in degree of purity so much as in the exclusion of specific contaminants.

Oxygen and nitrogen carried over in titanium reduction can have a detrimental effect on that metal's ductility and fatigue strength. Even when present in very small amounts, these contaminants are difficult to analyze, complicate evaluation of other process variables. It was to reduce the number of such variables in titanium research that National undertook the development of high-purity sodium.

Special Handling: Though considerable caution is required to insure safe handling, sodium is not as hazardous to use as some other common chemicals. It reacts readily—even violently—with water, alcohol, and many other compounds, but is not, by itself, explosive. And even in the molten state, sodium is not corrosive, can be contained in mild steel.

With few restrictions on materials of construction to contend with, the primary consideration in selecting equipment for handling liquid sodium is leakproof construction. Canned-rotor and electromagnetic pumps are well suited to sodium service by virtue of their totally enclosed operation. But conventional pumping systems can also be used if careful maintenance is set up to minimize danger of leaking.

Ethyl Corp., for example, employs a standard sulfuric acid pump to force liquid sodium through refining equipment. The only modification required was the addition of insulation to maintain the temperature of the pump above the melting point of the metal.

National Distillers, on the other hand, uses vacuum to move sodium through refining operations. Vacuum pumps are separated from contact with the metal by barometric loops, need no special protection. And vacuum provides added safety in the event of a break, says ND, by pulling air into the system rather than forcing the molten sodium out.

Purity Process: Similar to conventional sodium production, the high-purity process starts with electrolysis of molten mixed sodium and calcium chlorides in the Downs cell. Chief difference in this and other stages is the use of argon rather than nitrogen as the oxygen-excluding inert gas blanket, thus preventing formation of nitrides as well as oxides.

Calcium, which is used to lower the melting point of the chloride charge, constitutes the largest portion of the impurities usually found in so-

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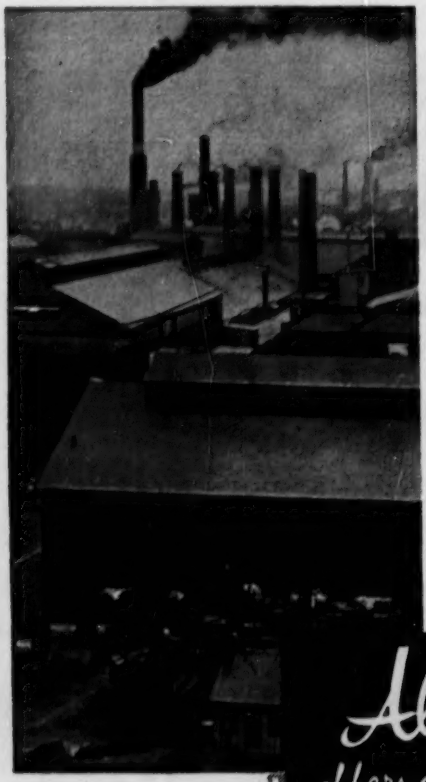

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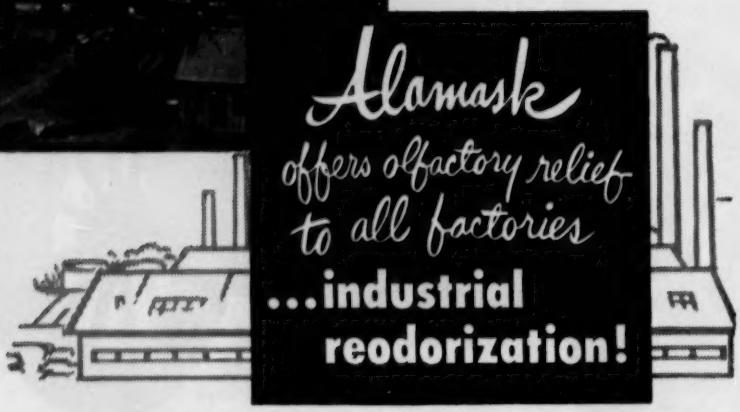

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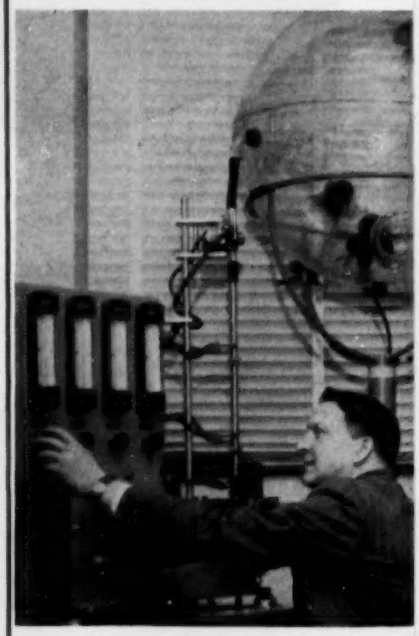
dium. Most of the calcium liberated by electrolysis is precipitated and dropped back into the cell as the sodium is cooled by drawing off through a finned riser pipe. Much that remains entrained in the sodium is later removed by filtration through 20x280-mesh screens after additional cooling has lowered the temperature to 110 C.

To further reduce the 0.04% calcium left in the regular grade, the high-purity process provides a special stage of filtration through sintered stainless steel frit. This filter removes calcium, oxides, nitrides, sulfates, and any other foreign solids 20 microns or larger in size. Since plugging of the frit necessitates frequent filter changes, Ethyl uses two filters in parallel operation, each capable of handling the full load while the other is down for cleaning.

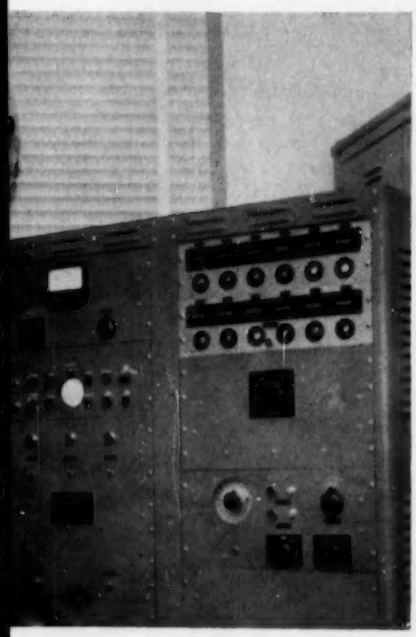


Aerosol Abacus

ELIMINATING the eyestrain and error of visual microscopy, the Army Chemical Corps' Aerosoloscope, puts accounting of airborne particles right at engineer Nelson E. Alexander's fingertips. It was developed at Camp Detrick (Frederick, Md.) to

As shipped, in argon-purged drums or tank cars, high-purity sodium contains no more than 0.005% oxygen—equal to or better than the purity obtained by distillation.

Within Reach: Both National Distillers and Ethyl are set up to turn out the high-purity sodium in large quantities. National Distillers put its argon-grade sodium on the market some time ago; Ethyl recently delivered its first tank car. The product commands a premium of about 2¢/lb.; hence its primary interest to chemical companies now is merely as a demonstration of how sodium can be handled in conventional processing equipment. Most of the production has been for experimental titanium work; it is not yet established whether or not commercial titanium production will need the high-purity product.



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EQUIPMENT

Powder Handling: Some of the latest equipment designed to handle powdered products:

• Bowen Engineering, Inc. (North Branch, N.J.) is offering a semi-works spray dryer for small, compact process installations. Sold as a packaged unit, the system comes complete with heater, spray nozzle, product collector, and supporting steel structure; fits in 7x9-ft. work space. Design features all-stainless steel construction, provides drying temperatures from 200 to 750 F.

• For packaging highly fluid powders, Thayer Scale and Engineering Corp. (Rockland, Mass.) offers its Model 700 filling scale. Designed to prevent flooding of such products as insecticides, rock dusts and spray-dried powders, the unit can be used with a variety of materials ranging from 8 to 135 lbs./cu. ft. It is available for either gross or net weighing of products packaged in open-mouth cans, drums, or 1- to 100-lb. bags.

• Any of four filling methods can be employed with the Model EG universal auger filler manufactured by Stokes & Smith Co. (Philadelphia). Simple auger drive control is said to provide accurate measuring of materials ranging from fine powders to pastes by volumetric filling, pressure packaging, gross weighing, or combination auger-vacuum. Micrometer adjustment of auger speed from 500 to 1000 rpm. permits 15 to 30 fillings per minute of ⅛-oz. to 5-lb. containers.

• An automatic open-mouth filling machine that enables one man to fill 22 to 24 100-lb. bags per minute is now available from Kraft Bag Corp. (New York). Capable of handling all weights from 25 to 200 lbs. with an average variance of not more than plus or minus 8 oz., the machine is claimed to provide rapid, accurate operation at reduced installation and packaging costs.

•

Pinch Valves: R. K. L. Valve & Mfg. Co. (Philadelphia) has brought out a line of flanged rubber-body valves for use with corrosive materials and abrasive slurries. An air-operated pinching mechanism regulates straight-through flow. High- and low-pressure series are available in ¼- to 14-in. sizes; for pressures to 100 psi., temperatures to 180 F.

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Sardi HAND CREAM keeps hands soft, smooth and lovely despite cold Winter weather. A pleasure to use, because it's pressure packed in SPRA-TAINER. Press valve lightly, release small amount of cream and massage into hands. Buy HAND CREAM for all the family.

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(Ethylene Glycol Monobutyl Ether)

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- **Baking enamels:** as a viscosity-reducing agent.
- **Varnishes:** as an excellent thinner.

MUTUAL SOLVENT IN

- **Industrial cleaners.**
- **Dry-cleaning soaps.**
- **Textile and metal-cutting oils.**

INTERMEDIATE FOR

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- **Vinyl plasticizers.**

IN HYDRAULIC FLUIDS

- **Important brake fluid diluent.**

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For additional information and prices, call or write the nearest CARBIDE *office. Ask for the technical bulletin on butyl* CELLOSOLVE *(F-7862) or for family books on groups of compounds mentioned above. In Canada: Carbide Chemicals Sales Company, Division of Union Carbide Canada Limited, Toronto.*

"Cellosolve" is the registered trade-mark for a family of industrial solvents made by Union Carbide.

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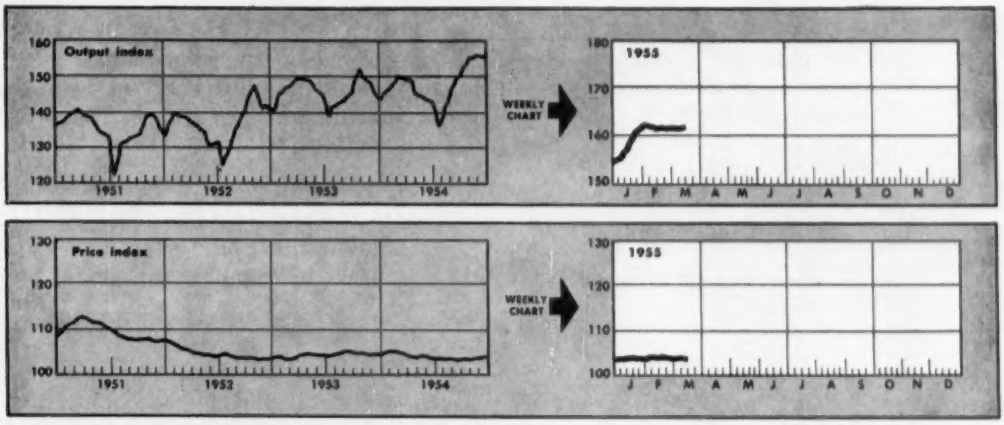
MARKETS . . . . . .



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947-1949 = 100)	161.5	161.0	155.0
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.0	104.1	104.6
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	372.2	381.9	272.7

MONTHLY INDICATORS—Wholesale Prices (Index 1947-1949 = 100)	Latest Week	Preceding Week	Year Ago
All Commodities (Other than Farm and Foods)	115.6	115.2	114.4
Chemicals and Allied Products	107.2	107.1	107.5
Industrial Chemicals	117.4	117.3	118.4

MARKET LETTER

Spurred by recent price rises in formaldehyde (*CW Market Letter, March 5, p. 64*) and lured by Du Pont's price boost in methanol-containing Zerone antifreeze in mid-February, Commercial Solvents steps up methanol prices by 3¢/gal., effective on spot orders at once, and contract orders as of April 1. That brings the schedule (in gallons) to: 30¢ for tank cars, tank transports (4000 gal. minimum); 45¢ carload lots, and 51¢ l.c.l. West Coast (Zone 2) prices go up 1¢/gal.

Major methanol producers are already posting a similar price list. To back them up: bountiful shipments are headed for formaldehyde makers to keep them abreast of lively orders for resins and adhesives. Overseas orders, too, have been going out by boatloads. Makers, not unmindful that methanol prices a year ago at this time were 2¢/gal. above the newest prices, may well be girding for war-threatened shortages and possible price freezing.

•

There's little doubt that the polyethylene market deluge, long-heralded for '55, is rapidly approaching the crest—and on schedule. Monsanto is the latest, closely following Spencer Chemical at Orange, Tex.—of an eventual list of perhaps nine major producers—to hit commercial production levels. The new Texas City installation can turn out some 60 million lbs./year, a goodly slug that will help shoot total U. S. polyethylene capacity to over 500 million lbs./year by '56.

On deck as the next polyethylene plunger, is National Petro-Chemicals' Tuscola, Ill., plant. Some 25 million lbs./year will come from there, with the first trickle due sometime within the next few weeks.

Although Monsanto's current output is polyethylene made via a

high-pressure process, the company is working hard on a low-pressure product. Material produced by the latter method is reportedly more resistant to heat. Bakelite recently moved into this field, and Phillips Petroleum is getting ready to market a low-pressure polyethylene.

•

Polyethlene is still way out in front as a plastic pipe-making material. One estimate pegs total consumption in this outlet as more than 20 million lbs./year. And the hefty 17% price cut initiated last week by one big extruded-pipe producer was a calculated move to keep polyethylene in the fore.

•

More of an adjustment than a price change is the way the trade is describing this week's drum quantity increases on alkanolamines. Both East and West carlot and l.c.l. listings on mono-, di-, and tri-ethanolamines are being raised ¼¢/lb. (Tank car schedules remain unchanged from postings of last August.)

Reasons put forward by most of the major sellers have a similar ring: last year's tank boosts did not quite reestablish the traditional differential between tank and drum tags— the new prices come closer to doing that. Then too, producers claim that costs of filling drums continue to go up. Spot ethanolamine consumers will start paying the differences immediately; contract customers, a little later on, depending on contract terms.

•

Effective April 1, though, are contract prices on carbon tetrachloride. At any rate, that's when Dow's ½¢/lb. across-the-board-increases become valid, and chances are most other producers are even now poised to make similar announcements.

Carbon tet production—as is true for the whole range of chlorinated solvents—is on the upswing (*see p. 101*)—result of a heartened hike in demand since '54's slack-off in business.

•

Chlorine and the alkalis show no faltering in movement at the moment, as marketers pick up orders set adrift by the near-seven-week strike at Wyandotte Chemical. Over-all capacity isn't being unduly strained, of course, but some chlorine sellers are handling just about all the business they can, especially within the freight range of the affected areas.

But the strike-induced buying merely pyramids the pickup that's been noticeable in the market. For instance, glass manufacturers, chemical makers, and other consumers' demands for soda ash have been brisk; high rayon production of late has dipped deeply into caustic soda; chlorine users (particularly paper and chemicals) have been buying strongly, and spring calls for water treatment outlets are beginning to come in now.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending March 14, 1955

UP

		Change	New Price
Calcium phosphate, feed grade, 18½% to 21% P, bgs., c.l., frt. equald., unit-ton		$ .30	$ 4.30
Defluorinated phosphate, feed grade, paper bgs., c.l., t.l., works, 13%	ton	3.90	53.40
18%	ton	5.50	69.85
Ethanolamines, c.l., dms., dlvd., East, Mono		.0025	.27
Di		.0025	.265
Tri		.0025	.235
Methanol, syn., tanks, dlvd. or 4000 gal. min., frt. alld., gal.		.03	.30

All prices per pound unless quantity is stated.

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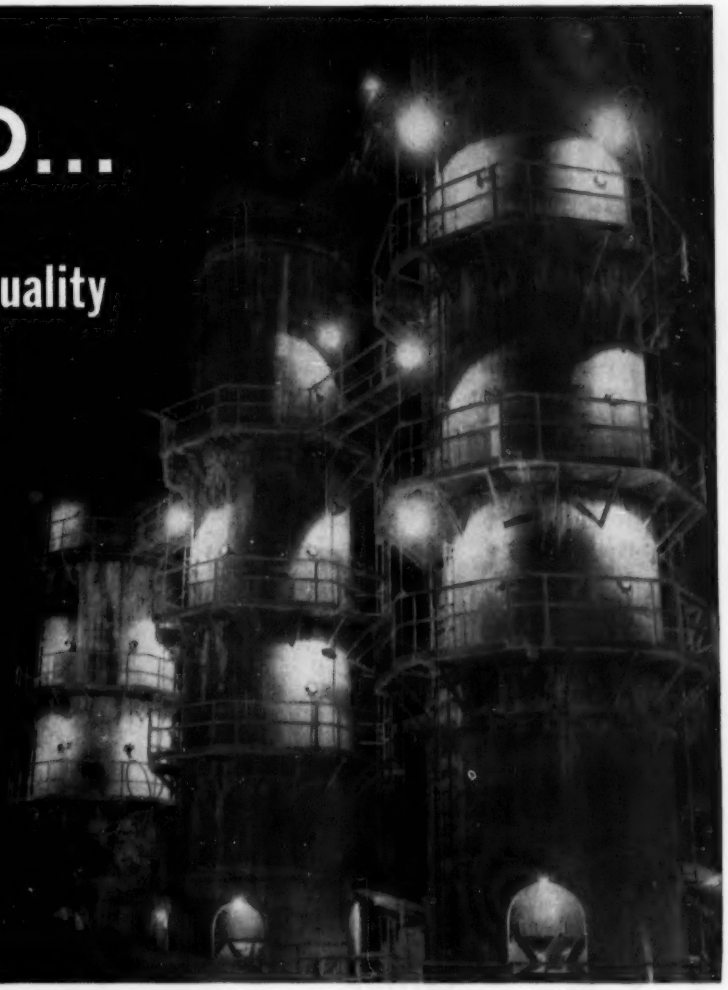

Giant kilns burn lime and coke to make carbon dioxide. This gas is used to separate the soda ash base from the brine that is pumped in from the natural deposits of Searles Lake in the California desert. The burned lime by-product is conveyed to a special plant where it is processed into hydrated lime—another product of West End Chemical Company.

The manufacturing, storage and shipping facilities of West End are constantly at work for western industry. This continuous operation provides ample soda ash to supply both immediate requirements and maintain a vast reserve. Regardless of market conditions, West End meets all normal and emergency needs of western industry promptly. Strategic location of plant permits fast, economical transport by rail or truck to any point in the West.

Write for samples, prices and technical data.

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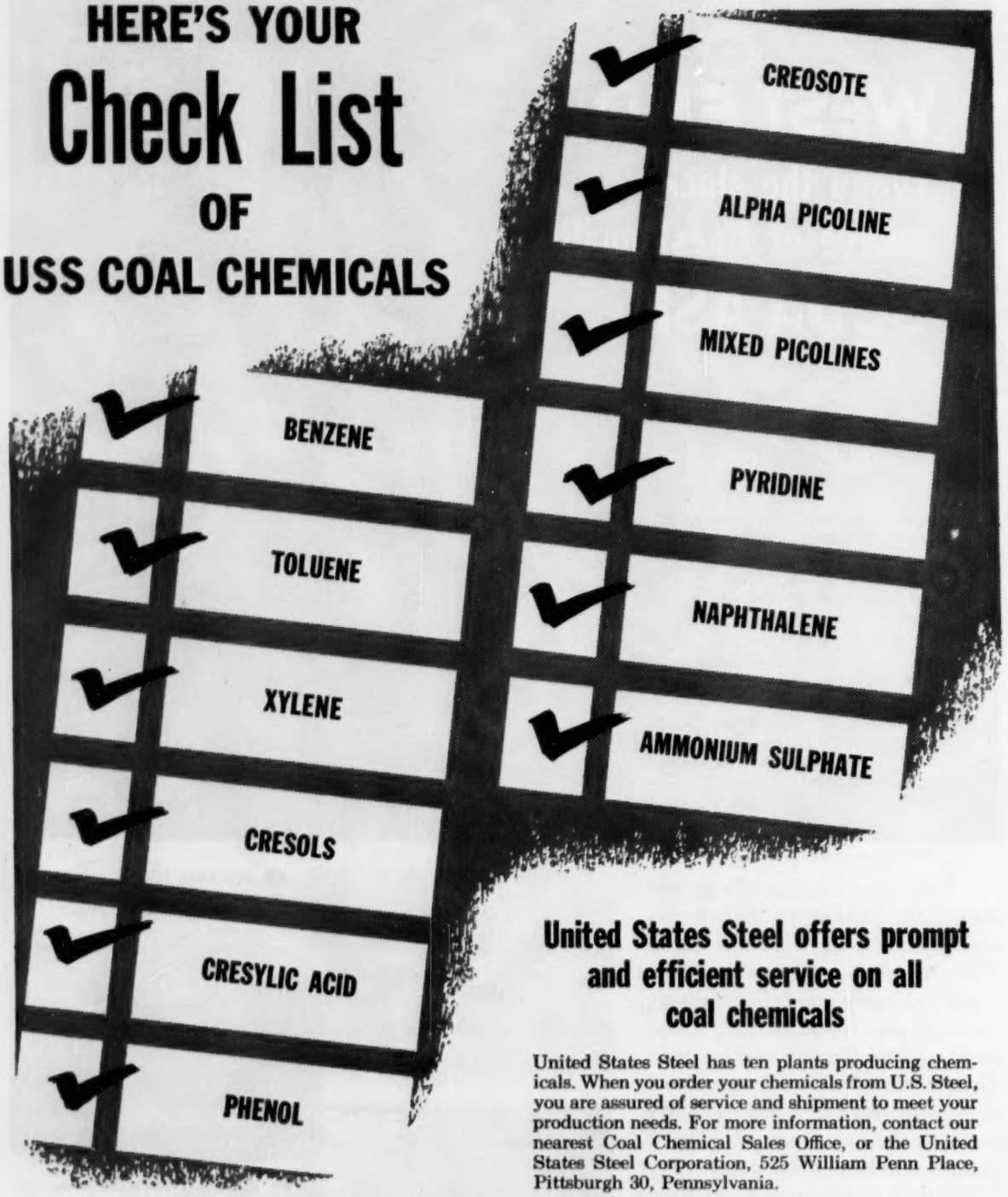
West End Chemical Co.

Executive offices: 608 Latham Square Building, Oakland 12, California • Plant: Westend, California

HERE'S YOUR Check List OF USS COAL CHEMICALS



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United States Steel has ten plants producing chemicals. When you order your chemicals from U.S. Steel, you are assured of service and shipment to meet your production needs. For more information, contact our nearest Coal Chemical Sales Office, or the United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

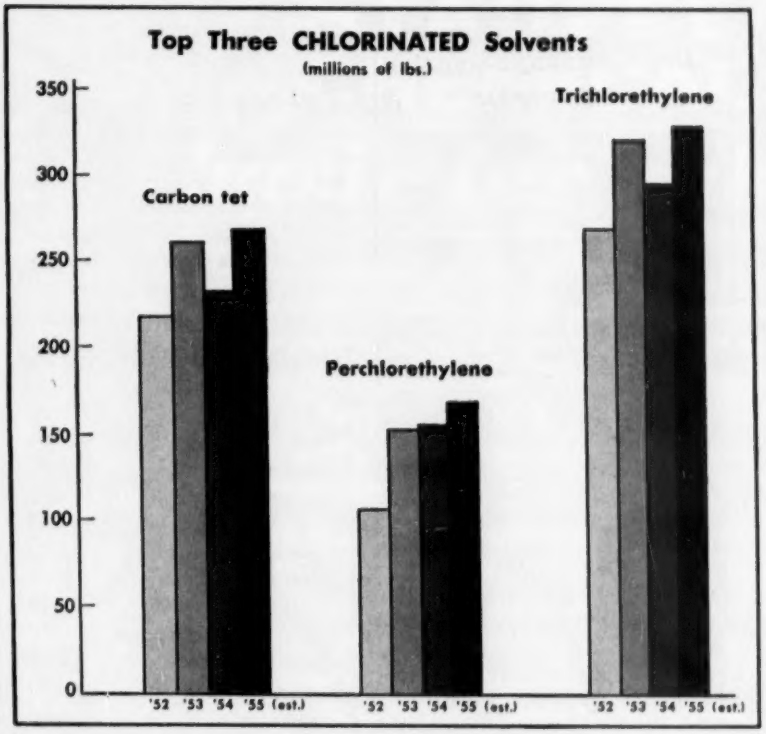
A NEW COLOR MOTION PICTURE, "The Waiting Harvest," tells an interesting story of U.S. Steel's participation in the field of chemicals. It is available on request in 16 or 35 mm film from Film Distribution Center, United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa.

SEE THE UNITED STATES STEEL HOUR. It's a full-hour TV program presented every other week by United States Steel. Consult your local newspaper for time and station.

USS Coal Chemicals

USS

UNITED STATES STEEL



FROM '52 to '55: An erratic step-up in output as . . .

Chlorocarbons Climb Again

Chlorinated hydrocarbon solvents as a group head for record heights in 1955. Production level of each will range from 10% to 15% above last year's.

Competition among chlorocarbons, however, seems to be subsiding as each corners its own market.

Chlorinated hydrocarbon solvent makers will turn out a record volume this year to meet a renewed demand after '54's slowdown. That sums up the chlorocarbon solvent output and use picture at the start of the year's second quarter.

Trichlorethylene Use
1955 (est.)

Metal degreasing	90-93%
Extraction solvent for oils, fats, waxes, etc.	3-6%
Dry cleaning	1-2%
Refrigerant	1%
Organic syntheses, fumigant, misc.	1%

The consensus highlights these record production estimates (in million lbs.) for 1955: trichlorethylene, 330-340; carbon tetrachloride, 265-275; perchlorethylene, 165-175; methylene chloride, 75-85.

Market in Vapor: Biggest market poundwise for chlorinated solvents is still in vapor degreasing of metal parts despite a decline last year in metal fabricating business. Degreasing will take an estimated 90-93% of this year's output of trichlorethylene (*see box*), or about 300 million lbs.

Although some 15%, or 25 million lbs., of the perchlorethylene produced this year will also be vaporized in degreasing units, trichlorethylene will maintain a long lead. Reason: it doesn't take as long to vaporize (b. p. 189°F) as perchlorethylene (b. p. 250°F), leaves metal parts cooler and easier to handle upon removal from a degreaser, and evaporates more quickly than the perchlor.

On the other hand, the higher boiling point of perchlorethylene is turned to advantage by degreasers of light metals, sheet stock, or thin sections. There's a wider spread of temperature between its vapor and parts introduced at room temperature than is the case with trichlorethylene. That means longer cleaning action by the condensate before temperature equilibrium between light parts and the vapor is reached.

Potent Prospects: An increased demand for perchlorethylene is foreseen as newer degreasing machines that can handle higher temperatures and steam pressures replace some worn-out equipment that used steam pressures adequate to vaporize tri- but not perchlorethylene. Greater availability of natural gas, too, can lower steam costs for those perchlorethylene degreasers who have heretofore depended on electricity.

Over-all vapor degreasing demand will grow for both tri- and perchlorethylene, and will continue to cut down the 40-45% share of metal cleaning still retained by alkali washing. The odds are high that as much as 25% of production-line metal cleaning will be done by vapor degreasing in the next three to five years.

Although vapor degreasing is the second largest use of perchlorethylene (*see box*), its top outlet is the dry-cleaning industry. By year's end some 140 million lbs. of the solvent will enter this consumer service. That amounts to about a third of national dry-cleaning solvent demand.

Stoddard solvent, and similar petroleum distillates, hold on to two-thirds of the market. But Stoddard solvent is flammable; hence, nonflammable perchlorethylene will gain favor in closely populated areas. A prognostication: perchlorethylene will

Perchlorethylene Use
1955 (est.)

Dry cleaning	78-82%
Metal degreasing	12-16%
Compounding	2%
Miscellaneous	3-4%

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WOrth 2-7763 MArket 2-3650

Dry Cleaning Solvent Consumption

(million lbs.)

	1948	1955
Perchlorethylene	40-45	133-140
Carbon tet	25-30	5-6
Trichlorethylene	5	3-6

likely seize half of the dry-cleaning solvent business within the next decade.

Perchlorethylene has fought out two other chlorinated solvents for its place in the dry-cleaning industry (*see box*). It eliminates:

- the toxicity of carbon tetrachloride fumes and its tendency to hydrolyze, and
- the bleeding of certain acetate dyes by trichlorethylene above 80 F.

Out, But In: Despite carbon tetrachloride's ouster from dry cleaning, this chlorocarbon has found a highly profitable place in the industrial sun (*see box*). Two-thirds of carbon tet output is now a major raw material in the production of dichlorodifluoromethane (Freon and Genetron 12) and trichloromonofluoromethane

Carbon Tetrachloride Use

1955 (est.)

Fluorinated hydrocarbons	67-68%
Industrial cleaning	9-13%
Grain fumigation	8-13%
Fire extinguishers	6-8%
Dry cleaning, spotting, misc.	2%

(Freon and Genetron 11), the principal fluorinated hydrocarbons in refrigerant and aerosol use today (*CW, Feb. 26, p. 85*). Only two years ago less than half of available carbon tet went into fluorocarbons.

Record demand for these fluorocarbons in air conditioning equipment and aerosol products will boost carbon tetrachloride's output.

Moving up alongside tri, per, and carbon tet, makers of methylene chloride are expected to pour forth 75-85 million lbs. this year, an amount 10% above an estimated '54 total of 73 million lbs., and almost double the 55.0 million lbs. produced in 1952. Paint and varnish removers will pre-empt about two-thirds of this turnout (*see box*), and the expanding market for aerosols may take an increasing share as a solvent and diluent for fluorinated hydrocarbons.

Methylene Chloride Use

1955 (est.)

Paint and varnish removal	60-65%
Solvent in casting of photographic film	12-15%
Solvent and diluent for aerosol fluorocarbons	7-10%
Solvent in chemical mfr. and compounding	7-10%
Extractant, refrigerant, and misc.	6-8%

Methyl chloride will show, by contrast, a slackening demand this year. Production may not overreach the 1953 output of 40.5 million lbs. A government surplus of off-standard material would have burdened the methyl chloride market more than it did, did not civilian uses—principally as a reagent in the manufacture of silicones and as a catalyst carrier and reaction diluent in making butyl rubber—require material of higher purity.

Except for methyl chloride consumption, the markets for the chlorinated hydrocarbons are expanding to record demand. And each compound, too, seems destined to increase its top end use during the next few years.

Makers of 'Top Three'

Columbia Southern	P
Diamond Alkali	C, P
Dow Chemical	C, P, T
Du Pont	P, T
Hooker-Detrex	T
Niagara Alkali	T
Solvay Process	C
Stauffer Chemical	C, P
Westvaco Chlor-Alkali	C

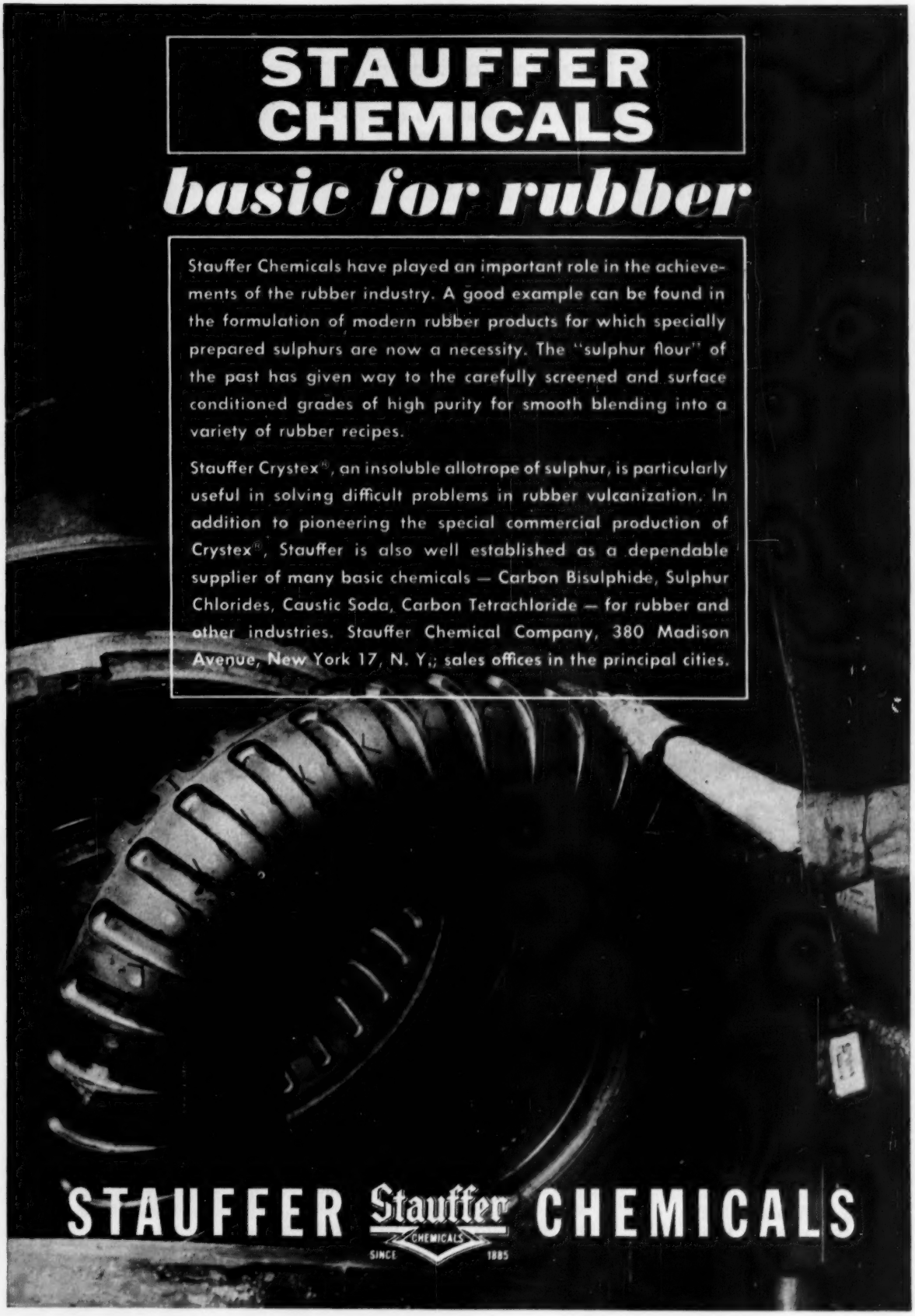
Key: C—Carbon tetrachloride; P—perchlorethylene; T—trichlorethylene.

STAUFFER CHEMICALS

basic for rubber

Stauffer Chemicals have played an important role in the achievements of the rubber industry. A good example can be found in the formulation of modern rubber products for which specially prepared sulphurs are now a necessity. The "sulphur flour" of the past has given way to the carefully screened and surface conditioned grades of high purity for smooth blending into a variety of rubber recipes.

Stauffer Crystex®, an insoluble allotrope of sulphur, is particularly useful in solving difficult problems in rubber vulcanization. In addition to pioneering the special commercial production of Crystex®, Stauffer is also well established as a dependable supplier of many basic chemicals — Carbon Bisulphide, Sulphur Chlorides, Caustic Soda, Carbon Tetrachloride — for rubber and other industries. Stauffer Chemical Company, 380 Madison Avenue, New York 17, N. Y.; sales offices in the principal cities.



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As acknowledged pioneers and recognized authorities in the correct use of pyrethrum, allethrin and their most effective synergists, MGK 264 and piperonyl butoxide, we offer standardized concentrates, extracts, dusts of guaranteed uniformity.

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Pyrethrum Accord

Some 50,000 lbs./year of stock-pile surplus pyrethrum extract is slated to hit the domestic market, and the diverting will likely begin this fall. The time—when companies prepare for the February-June selling season—was suggested as propitious by representatives of the pyrethrum importing and processing industry at a recent conference with officials of Business & Defense Services Administration, General Services Administration and other agencies in Washington.

The government isn't disclosing the exact amount now being held in excess of mobilization needs and that will eventually be funneled to the trade, but indications are that the oversupply is so great that a one-time dumping would just about break the market for pyrethrum flowers and extract.

The question—how much could the market take?—was discussed at the meeting, and though the government planners first suggested a much higher figure, 50,000 lbs. was finally settled on as a good yearly disposal target. The trade agreed that that amount could be absorbed without any undue upsetting.

This concession, however, comes as somewhat of a surprise. Previously some observers had expressed the opinion that the sale of any quantity of government-held pyrethrum extract would have an "unfavorable impact" on the market.

Not that business on the whole is in the doldrums—imports have been fairly uniform over the past several seasons. Note the comparatively slight variation in imports of pyrethrum material (chiefly flowers*) during the last few crop years (*see box*).

U.S. Pyrethrum Imports (in lbs.)	
1951	7,076,000
1952	6,641,000
1953	7,740,000
1954 (est)	7,500,000

The advent and development of synthetic pyrethrin-like products (e.g., allethrin, Cyclethrin), has given the natural material a run for some outlets, particularly use in pressurized aerosol dispensers, but competition, generally, hasn't been as rough as was originally anticipated. One chilling fact for growers, however: potential productive capacity for the synthetics could make the U.S. largely independent of imported pyrethrum if necessary.

Annual domestic consumption of pyrethrum extract currently ranges between 400,000-500,000 lbs. Security regulations shroud the total amount now in the nation's stock pile, but a recent review by the Office of Defense Mobilization of requirements for the government's store of strategic materials reveals that there is more than enough to cover any exigency.

Some of the material has actually been stored since 1947. The old extract is still potent, but presence of impurities means it will have to be reprocessed before it can be used.

Trade representatives at the Washington conference cited this reworking necessity as a logical reason for sales of the surplus to be made only to processors of the pyrethrum flowers. Further, they feel GSA should dispose of the extract by negotiating with existing processors on the basis of each company's '54 percentage participation in total U.S. imports.

BDSA was amenable to the industry's ideas and at the moment is canvassing processors for such import data. The information will serve as a benchmark for BDSA's recommendation to GSA as to how much each company should be allowed to purchase.

Incidentally, the pyrethrum to be sold will carry no cut-rate tags; all sales will be made at the existing world price. This, too, is expected to lighten the blow when the material is channeled to industry.

Right now, the agencies involved in the surplus disposition are moving fast to meet the trade suggestion that the pyrethrum be sold during the fall and winter months. Under present regulations, GSA must give notice to the *Federal Register* six months before making any sale of material from the stock pile. To start selling in October, GSA must publish its sale notice this month.

One industry man's comment anent the get-together and solution of the surplus problem: it's a good way to do business, and the government sale will not be accompanied by the hectic hubbub usually attendant on such disposal programs.

* Approximately 17 lbs. of pyrethrum flowers yield about 1 lb. of extract.

Vice Presidents C. J. Kubik and K. W. Erdman discuss sales strategy for Eastern Chemical's new line of dishwashing products.

"Pluronics made our new dishwashing line possible"

— Eastern Chemical Corporation

Eastern Chemical Corp., Reading, Pa., has one thing in common with other manufacturers of dishwashing products — they are constantly on the alert for new developments that will help them meet the intense competition in their field.

When Eastern Chemical recently began planning their new line of dishwashing products, they worked diligently with Wyandotte's new 100%-active nonionic surface-active agents — the Pluronics*. Here, in their own words, are the results:

"The addition of a small amount of Pluronics to our mechanical dishwashing compounds has overcome some problems which we have been trying to solve for years. In fact, our line of dishwashing products is greatly enhanced by the unique combination of properties available only in the Pluronics, particularly their increased wetting and low-foaming features."

Have you been looking for a surface-active agent that will enhance the rinsability of your compounds without increasing the suds level? Wyandotte's Pluronic L62 will do just that . . . in fact it acts as a defoaming agent. At the same time, Pluronic L62 gives you two extra advantages — effective, permanent dedusting and no increase in moisture pickup.

Fill out and mail the coupon today. Tell us your needs. We will supply you with samples of the Pluronics, a data sheet summarizing their physical and surface-active properties, and other technical and price information. *Wyandotte Chemicals Corp., Wyandotte, Michigan. Offices in principal cities.*

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Wyandotte Chemicals Corporation
Department CW-2, Wyandotte, Michigan

Please send:
- ☐ Data on the use of Pluronics in mechanical dishwashing.
- ☐ Sample of Pluronic L62 for mechanical dishwashing.
- ☐ Sample of all grades of Pluronics commercially available.
- ☐ Have your representative call on me.

Name_____

Firm_____

Address_____

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WINDSHIELD SPRAYING: Cold weather or hot, misting makes a market.

Better Sight, Bigger Sales

New antifogging compounds are being warmed up for the home-use market—they've already caught on in industry.

Demand for about $1 millions' worth/year is just a starter—if the householder market can be jacked up.

With Carhoff Co. (Cleveland) developing a new 10-25¢ packet of antifogging tissues for the broad retail market, and Wilkins Co. (Cortland, N.Y.) readying an individual-size unit of chemical-and-tissue for glasses care, it's plain that specialties makers are finding a fattening market for compounds to reduce steaming and misting of glasses.

And winter's end, next week, isn't figured to bring any slump in the sales of the desteamers. There'll be an understandable decrease in the number of radio spots and newspaper ads telling motorists how to beat windshield misting due to snow and sleet. But over-all, the antifogger business has lost much of its seasonal nature—because its emphasis is on industrial applications now, it moves along with an accelerating pace approaching $1 million/year (retail).

In-Plant Training: Safety has been the big selling point, industrially, for the antifoggers. Increasing emphasis on safety glasses and goggles throughout industry has created a demand for goggle care stations, where cleaning and demisting chemicals do the vital job.

Not all wearers of safety glasses need the antifoggers, of course. Largely, it is the forge and foundry workers or welders who move from areas of one temperature to another. They have found the antifoggers virtually indispensable, and it is their acceptance of them that has encouraged safety equipment suppliers to venture consumer products.

Some of the leaders among suppliers of these antifoggers to industry: American Optical Co. (Southbridge, Mass.), with its AO Anti-Fog; Carhoff Co. with No-Fog; Merix Co. (Chicago), Merix Anti-Fog; Mine Safety Appliance Co. (Pittsburgh), Fogpruf; and Wilkins Co., Fog-Free.

Work and Play: For the nonindustrial user, the antifoggers do a number of helpful chores. Around the home, they can be used for bathroom mirrors, kitchen windows—on any plastic or glass surface that might become hazy with moisture.

Glasses wearers—particularly those who indulge in active sports—find them useful. "Skin divers," who must wear goggles or masks, comprise an unusual but growing list of customers.

Klear-Glass is a product extensively promoted for such sport and household applications, as well as for industrial use; it's made by the Buckley Corp. (New York). Another product is Glasskleer cloth, by Viking Sloan Corp. (New York). There are numerous others available in sports and variety stores throughout the nation.

No Drops: Formulations for antifog agents of one sort or another have been around for years. In the past, they have often been soaplike compounds designed to cause condensate to form sheets of moisture rather than minute droplets.

Newer formulations make use of dry, fatty alcohol sulfates, tannic acid, glycerine, and water (this can be added to tissue or cloth). Glycerine, camphor, and potassium oxalate have gone into other paste types (many are touted as cleaning compounds as well as antifoggers).

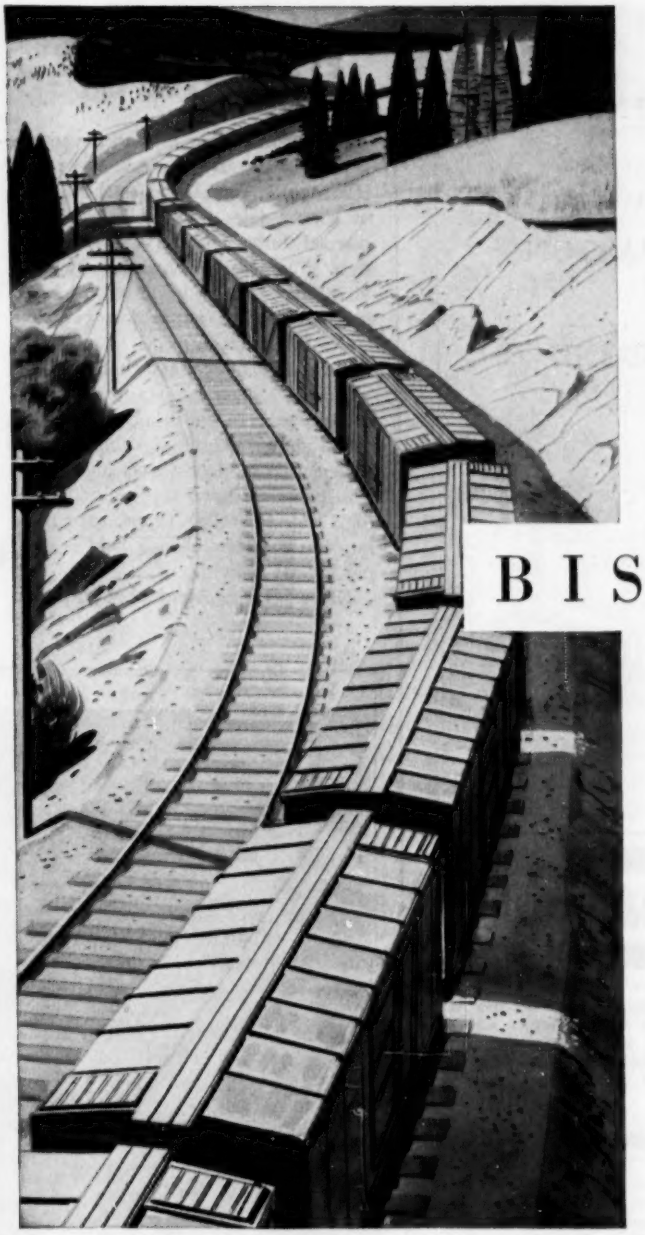
Silicones, well established as eyeglass cleaners, haven't found widespread application as desteamers; Dow Corning says it sees no real function for the silicones in specialty jobs of this kind.

The majority of the antifoggers sold industrially are liquids—this includes Buckley's Klear-Glass, Wilkins' Fog-Free. But creams are not uncommon—typical is American Optical's Anti-Fog—and cloths or tissue (e.g., Carhoff's No-Fog) are widely used.

Self-Sprayers: For packaging the liquid types, glass bottles with pump-like dispensers, polyethylene squeeze bottles, and aerosol cans have been tried with considerable success. The aerosols (12 oz.) seem to be particularly successful in industry.

For the liquid antifoggers sold by safety supply houses, $13-15/gal. isn't a uncommon price. For individual aerosol containers, $1.50 is a typical price for 12 oz. Treated cloths go to householders for about $1 each.

So far, the industrial market has proved most dependable. But the home-use market, much harder to tap, is felt to hold much more promise.



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SPECIALTIES . . . .

Second Step

As its second major expansion venture in less than 10 years, Simoniz Co. (Chicago) is completing establishment of a new sales division in the commercial bulk field (CW Newsletter, Feb. 5). This week, with key-city distribution plans in order, Simoniz is launching its national advertising and sales program.

It was just 10 years ago that Simoniz, which had been an important factor in the wax auto polish industry for 30 years, stepped through kitchen doors with a line of floor waxes and furniture polishes. Now, says Sales Director C. V. (Charlie) Lipps, expansion into the commercial bulk field is simply logical growth.

Kickoff Time: Announced officially

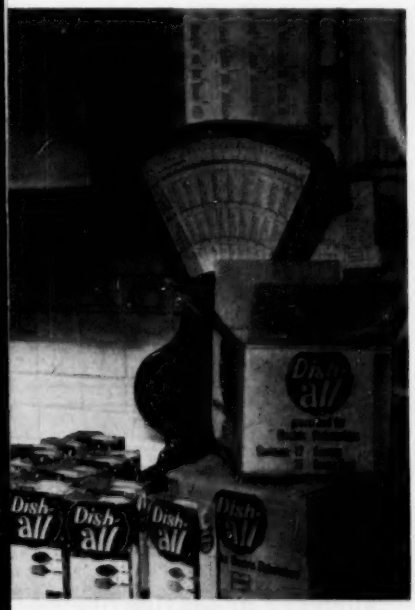
Detergent Gets

HOW FAST can a firm move to take advantage of a news break? Monsanto gave an object lesson like this: Feb. 28, the Duke of Edinburgh bought Queen Elizabeth of England an electric dishwasher. Next day, Monsanto revealed its brand-new formulation of its low-sudsing detergent, All,

into Bulk

at the Plant Maintenance and Engineers Show in Chicago last month, the new division of Simoniz climaxes selling and organizational plans that were begun in May '54. Currently, the division is getting its share of publicity at other shows, and in promotional campaigns in magazines for the institutional and maintenance fields.

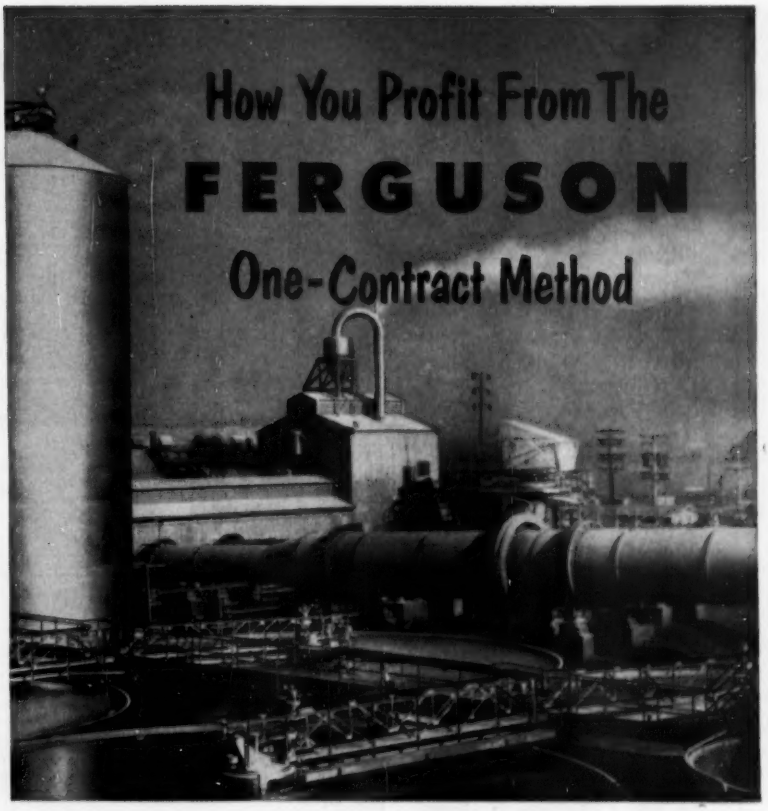
Simoniz originally tested its sales setups in three major and four secondary cities. In this way, it evolved its present distribution plan, which calls for selected distributors in each area—to sell to commercial, institutional and industrial bulk wax consumers. Simoniz won't sell directly to the consumer, but will turn over orders, inquiries and sales leads to the



a Royal Debut

especially designed for automatic dishwashers. The same day, Don Verbeck in St. Louis was packing 32 lbs. of Dish-All (a year's supply) to be rushed to the Queen.

Dish-All, in 20-oz., foil-wrapped packages, hasn't yet been introduced to the American market, but it will be on dealer shelves soon.



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SIMONIZ'S LIPPS AND RAINS: To prove successful homework pays off in industry.

appropriate distributor in the particular area.

Hard Sell: Charlie Lipps figures he's going to have a tough job ahead—he feels the commercial bulk market receives more concentrated sales effort by competitors than does the home retail market. He's put Hugh Rains, who has handled similar sales campaigns for Simoniz in the past, in charge of the new division, says he eventually hopes to see the new division in the same kind of position Simoniz has in other fields (it claims No. 1 spot in auto waxes, No. 2 spot in household waxes).

The sales approach this year will be based on several points—Simoniz's reputation in other fields, its research labs, its specially designed formulations.

Present line-up of commercial products: heavy-duty (self-polishing) floor wax, which has a full wax base; nonscuff (self-polishing) floor wax, with a wax and resin base; paste floor wax, liquid concentrate floor cleaner; and a liquid no-buffing type of furniture polish.

Simoniz will price its products in the middle range—waxes in this price area generally sell for about $2.50-$3/gal. The firm will offer formulations particularly developed for commercial use; such products are generally subjected to tougher wear than home polishes.

Some in the trade have been surprised by the latest Simoniz move. They point to the 30 years that preceded Simoniz's step into the household field. But as Hugh Rains explains it, that first step was stalled nearly seven years by a war; there's no war to contend with now, and Simoniz won't be hesitating on this latest big step.

•

Cautious Foamer: For formulators of synthetic detergents, Rohm & Haas Co. is now selling a low-foaming nonionic detergent called CF-10 experimental detergent. It's available in commercial quantities now, shipped in 450-lb. drums and 40-lb. cans.

•

Unsettled Pricing: Another ruling concerning "fair trade" is in, this time from Colorado. Denver District Judge Robert McWilliams, Jr., holds that the Colorado fair trade act's "nonsigner clause" is unconstitutional.

Olin Mathieson Chemical Corp., which had sought an injunction against a Denver retailer for selling its ammunition and arms below set prices, will probably appeal the decision.

•

Essential Expansion: Several manufacturing buildings in Fredonia, Wis. (near Milwaukee), have been added to the facilities of Essential Chemicals Co.—maker of specialty detergents and soap concentrates.

•

Household Helpers: Headed for home use are some new specialties, among them:

• Fur Frost Fur Cleaner and Lusterizer, made by White Frost Chemicals, Inc. (New York). It's an aerosol-

packed (12 oz., $4.95) specialty to clean and "lusterize" fur garments for storage. A formulation of trichloroethylene, camphor gum, paradichlorobenzene, and lanolin, it is applied to the fur, then wiped off. One can cleans four full-length coats.

• Polly Pewter. It's a polish introduced by Technology Laboratories (Wolfeboro, N.H.). An 8-oz. bottle sells for $1.

•

Paint Booster: National Lead Co. is promoting its Dutch Boy paints this spring by offering flower seeds as a premium. The seeds are coated with a plant-food compound and tinted to indicate the color of the flower-to-be.

•

Push-Button Packed: Dri-Mist is a new, aerosol-packed deodorant now being sold by Lee Ltd. (Beverly Hills, Calif.). The small can (2-2.5-oz.) sells for 99¢ plus tax, is filled by George Barr & Co. (Chicago).

•

Anti-Oxidant Pair: Sindar Corp. (New York) is now selling a new anti-oxidant for use with paraffin wax, stearates, and alkyl aryl sulfonates. Called Compound 19, it is a white, crystalline bis-phenol compound.

• UOP 88 is an "anti-ozodant" introduced by Universal Oil Products Co. (Des Plaines, Ill.) for addition to rubber products. It's to inhibit ozone deterioration of GR-S rubber, and is said to be effective at the moderately high temperatures encountered in automobile tires.

•

Chip Insecticide: Montrose Chemical Corp. of California is offering DDT in a new physical form called Krisp Chips. Easily ground, highly soluble, the chips are suggested for either dust or liquid formulations. Montrose also sells flake DDT.

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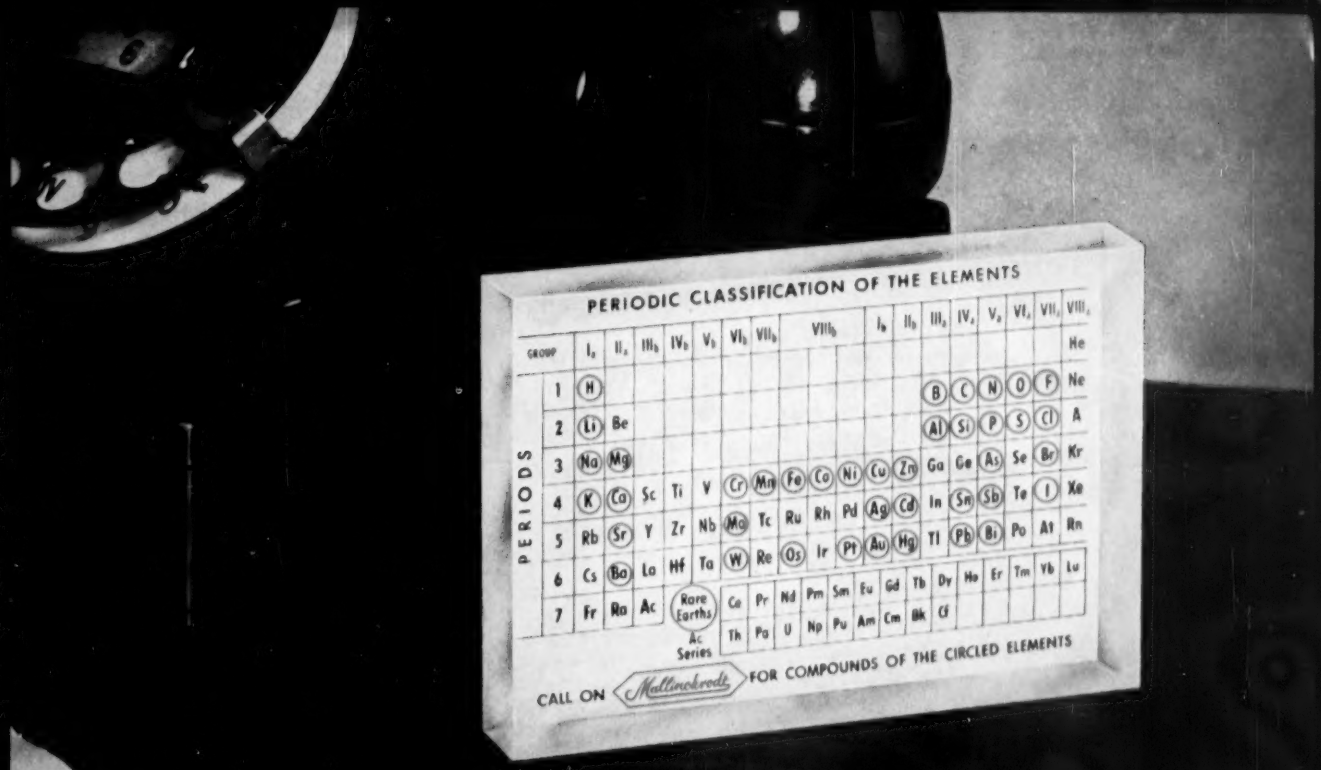

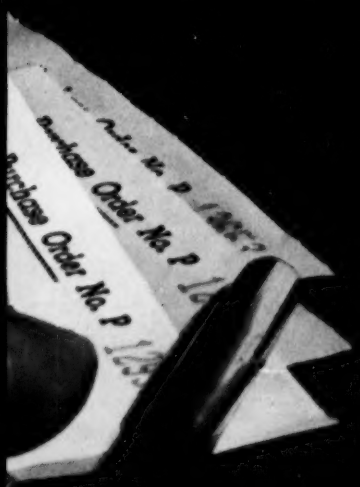

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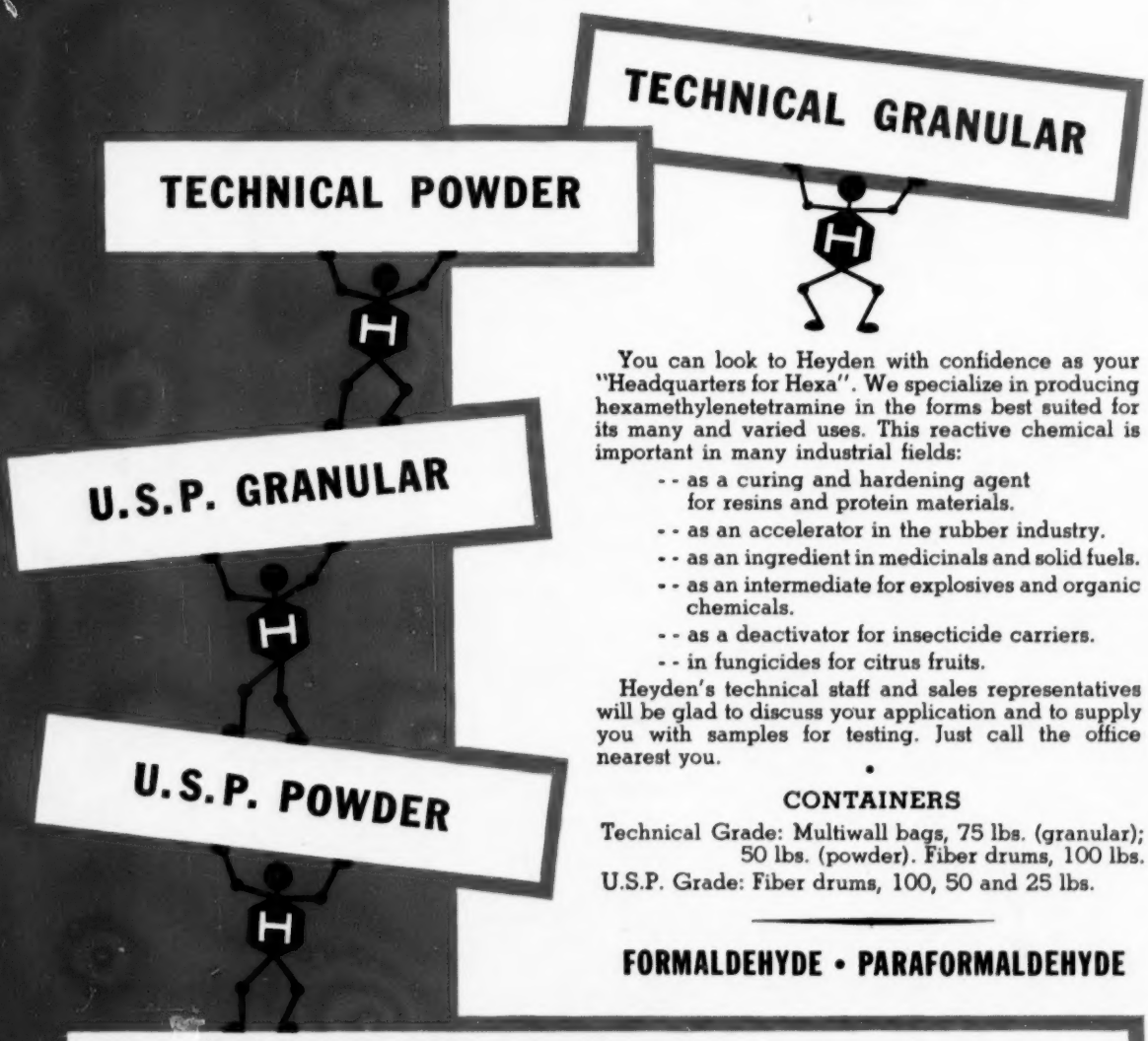

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